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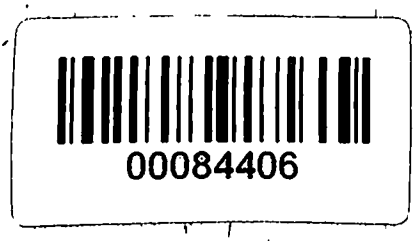
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Voyage Round the World
in the years 1785-88
J.F.G. de La Pérouse

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ERRATA.

Page 11, line 20, inſert *they* after *determination.*
—— 45, — 26, for *Kabroof* read *Kaborof.*
—— 134, — 47, for *Cooke* read *Cook.*
—— 155, — 1, for *Journal* read *Journey.*
—— 159, — 16, 17, for *plans* read *planes.*
—— 171, — dele *Chapter XXVII.*
—— 329, — ult. for *rivality* read *rivalry.*
—— 340, — penult. for *ſmaller* read *leſs.*

VOYAGE

ROUND THE WORLD,

IN THE YEARS

1785, 1786, 1787, AND 1788.

CHAPTER XXII.

Anchorage in the bay of Avatſcha.—Obliging reception given us by lieutenant Kaborof.—Arrival of Mr. Kaſloff-Ougrenin, governor of Okhotſk, at the harbour of St. Peter and St. Paul.—He is immediately followed by Mr. Schmaleff, and by the unfortunate Ivachkin, who inſpires us with the moſt lively intereſt in his fate.—Kind attention paid us by the governor.—A ball of the Kamtſchadales.—A courier from Okhotſk brings us letters from France.—We diſcover the tomb of M. de la Croyere, and place an inſcription on copper over it, as well as over that of captain Clerke.—New views of Mr. Kaſloff, in the adminiſtration of Kamtſchatka.—We obtained permiſſion to ſend our interpreter to France with our diſpatches.—Departure from the bay of Avatſcha.

(SEPTEMBER 1787.)

WE had not yet moored before the harbour of St. Peter and St. Paul, when a viſit was paid us by the *toyon*, or chief, of the village, and ſeveral other inhabi-

inhabitants. All of them brought us preſents of ſalmon, or ſkate, and offered us their ſervices in hunting bears, or in ſhooting the ducks, with which the ponds and rivers are covered. We accepted their offers; lent them muſkets; gave them powder and ſhot; and found no want of wild-fowl during our whole ſtay in the bay of Avatſcha. They required no money as a reward for their fatigue; but we had been ſo amply provided at Breſt with articles of the greateſt value to Kamtſchadales, that we inſiſted upon their accepting tokens of our gratitude, which our opulence enabled us to proportion rather to their wants than to the worth of their game. The government of Kamtſchatka had been entirely changed ſince the departure of the Engliſh. It was now only a dependency of that of Okhotſk; and the different poſts of the peninſula were commanded by different officers, who were accountable for their conduct to the commandant-general of that province alone. Captain Schmaleff, the ſame perſon who ſucceeded major Behm *pro tempore*, was ſtill in the country, with the title of commandant of the Kamtſchadales. Mr. Reinikin, his real ſucceſſor, who arrived at Kamtſchatka a ſhort time after the departure of the Engliſh, had remained there only four years, and had returned to Peterſburg in 1784. Theſe particulars were communicated to us by lieutenant Kaborof, who was governor of the harbour of St. Peter and St. Paul, with a ſerjeant and a detachment of forty ſoldiers

or coſſacks under his command. The kind attentions of this officer were boundleſs: his perſonal exertions, thoſe of his ſoldiers, every thing, in ſhort, that he poſſeſſed was at our ſervice. He would not even permit me to ſend off one of my own officers to Bolcheretſk, where Mr. Kaſloff-Ougrenin, the governor of Okhotſk, who was making a tour through his province, happened moſt fortunately to be. He told me, that the governor was expected to arrive in a few days at St. Peter and St. Paul's, and that he was probably already on the road. He added, that the journey was more tedious than we might ſuppoſe, becauſe the time of the year not permitting the uſe of a ſledge, it was neceſſary to travel half the way on foot, and the other half in a canoe upon the rivers of Avatſcha and Bolcheretſk. Mr. Kaberof at the ſame time propoſed to ſend off a coſſack with my diſpatches to Mr. Kaſloff, of whom he ſpoke with an enthuſiaſm and ſatisfaction in which it was hardly poſſible not to participate. He congratulated himſelf every moment upon the opportunities we ſhould have of converſing, and communicating with an officer, whoſe education, manners, and knowledge, were not inferior to thoſe of any officer of the Ruſſian empire, or indeed of any nation whatever. M. de Leſſeps, our young interpreter, who ſpoke the Ruſſian language as fluently as French, tranſlated the kind expreſſions of the lieutenant; and wrote a Ruſſian letter in my name to the governor of Okhotſk, to whom I

alſo wrote in French myſelf. I told him, that the narrative of Cook's laſt voyage had ſpread the fame of the hoſpitality of the Kamtſchadale government; and that I flattered myſelf I ſhould meet with a reception ſimilar to that of the Engliſh navigators, ſince our voyage, like theirs, was meant to conduce to the common advantage of all maritime nations. As Mr. Kaſloff's anſwer could not reach us in leſs than five or ſix days, the worthy lieutenant told us, that he only anticipated his orders, and thoſe of the empreſs of Ruſſia, by begging us in the mean time to conſider ourſelves as in our native land, and to diſpoſe freely of every thing the country afforded. It was eaſy to perceive by his geſtures, his looks, and his expreſſions, that if it had been in his power to perform a miracle, the mountains and moraſſes of Kamtſchatka would have been transformed for our gratification into an elyſium. A report was circulated, that Mr. Kaſloff had no letters for us, but that Mr. Steinheil, the former governor, whom Mr. Schmaleff ſucceeded as captain-iſpravnik, or inſpector of the Kamtſchadales, and who reſided at Verkhnei-Kamtſchatka, poſſibly had; and inſtantly upon this vague conjecture, which had ſcarcely a ſemblance of truth, he ſent off an expreſs, who had more than 150 leagues to travel on foot. Mr. Kaborof knew how extremely deſirous we were of receiving letters from France. He had learned from M. de Leſſeps how great our diſappointment had been on finding that no packets addreſſed to us had

had arrived at St. Peter and St. Paul's. He appeared almoſt as much afflicted as ourſelves; and by his ſolicitude and cares ſeemed to ſay, that he would go to Europe himſelf in ſearch of our letters, if there were any hope of his finding us on his return. The ſerjeant and all the ſoldiers manifeſted an equal deſire to oblige, and Mrs. Kaborof, on her part ſhewed us every poſſible attention: her houſe was open to us at all hours of the day, and tea and the other refreſhments of the country were prepared there for our uſe. Every one wiſhed to make us preſents, and, in ſpite of our determination not to receive any, it was impoſſible to withſtand the preſſing ſolicitations of the lieutenant's lady, who forced our officers, M. de Langle, and myſelf, to accept a few ſkins of ſables, rein-deer, and foxes, far more uſeful, without doubt, to thoſe who parted with them, than to us who were about to return towards the tropics. Fortunately we had the means of acquitting ourſelves of the obligation; and we inſiſted on being permitted in our turn to offer ſuch things as were not be found at Kamtſchatka. But though richer than our hoſts, our artificial manners did not permit us to vie with them in that ſimple and affecting expreſſion of kindneſs, which ſtamps a value on the meaneſt gift.

Through the medium of M. de Leſſeps I ſignified to Mr, Kaborof, that I was deſirous of forming a little eſtabliſhment on ſhore, for the purpoſe of lodging our aſtronomers, and depoſiting a quadrant

drant and a pendulum. Immediately the moſt commodious houſe in the village was offered us; and as we repaired thither but a very few hours after the requeſt was made, we thought we might venture to accept it without indelicacy, becauſe to us it appeared uninhabited. But we learned afterwards, that the lieutenant, to make room for us, had turned out the corporal; who was at the ſame time his ſecretary, and the third perſon in the country. Such is the Ruſſian diſcipline, that its movements are executed with as much promptitude as the manual exerciſe, no order being neceſſary but a nod of the head.

Our aſtronomers had ſcarcely erected their obſervatory, when our naturaliſts, whoſe zeal was not inferior to theirs, determined to viſit the volcano, in appearance not more than two leagues diſtant, though in fact it was at leaſt eight to the foot of the mountain, which was almoſt entirely covered with ſnow, and at the ſummit of which the crater was ſituated. The mouth of this crater, turned towards the bay of Avatſcha, preſented conſtantly to our eyes thick clouds of ſmoke; and once during the night we perceived faint blue and yellow flames; but they roſe to a very inconſiderable height.

The zeal of Mr. Kaborof was as much excited in favour of our naturaliſts, as of our aſtronomers; and immediately eight Coſſacks were ordered to accompany Meſſieurs Bernizet, Monges, and Receveur. The health of M. Lamanon was not ſufficiently re-

eſtabliſhed

eſtabliſhed to permit him to engage in the expedition. Never perhaps was one ſo laborious undertaken for the advancement of the ſciences. Not one of the learned Engliſh, Germans, or Ruſſians, who had travelled in Kamtſchatka had ever ventured upon ſo difficult an enterpriſe. From the aſpect of the mountain I judged it to be entirely inacceſſible. There was no appearance of verdure—it was nothing but a rock, of which the acclivity was terribly ſteep. Our intrepid travellers ſet off in hopes of overcoming theſe obſtacles. The Coſſacks were loaded with their baggage, which conſiſted of one tent, a number of ſkins, and the proviſion that each perſon had laid in for four days. The honour of carrying the barometers, the thermometers, the acids, and the other articles neceſſary for obſervation, was retained by the naturaliſts, who could not truſt ſuch frail inſtruments to any other hands; beſides, their guides were only to conduct them to the bottom of the peak, a prejudice, as ancient perhaps as Kamtſchatka, making both Kamtſchadales and Ruſſians believe, that the mountain emits a vapour, which muſt infallibly ſuffocate all who are raſh enough to aſcend it. They flattered themſelves no doubt, that our natural philoſophers would, like themſelves, ſtop at the foot of the volcano, having probably been inſpired with a tender concern for their fate by a few glaſſes of brandy given them previous to their departure. With this hope they ſet off in high ſpirits, and made their firſt halt in

the middle of the woods, at ſix leagues diſtance from the harbour of St. Peter and St. Paul. The ground they had as yet gone over oppoſed little obſtacle to their paſſage, though covered with ſhrubs and trees, the greater number of the latter being of the birch ſpecies. The pines that were there were ſtunted, and little better than dwarfs. One ſpecies of them bears cones, of which the ſeeds or nuts are good to eat; while a very wholeſome and agreeable beverage flows from the bark of the birch. This liquor the Kamtſchadales take care to collect, and drink very freely. Berries of every kind, and of every ſhade of red and black, alſo offered themſelves to the traveller's at every ſtep. Their taſte is in general ſomewhat acid; but they are rendered highly palateable by the admixture of ſugar.

At ſunſet the tent was pitched, the fire lighted, and every thing prepared for paſſing the night, with a promptitude unknown to people accuſtomed to reſide in cities. The greateſt care was taken to prevent the fire from ſpreading to the trees of the foreſt. The application of the ſtick to the backs of the Coſſacks would not have ſufficed to expiate ſo ſerious a fault, becauſe the flames never fail to put the ſables to flight. After ſuch an accident no more are to be found during the winter, which is the hunting ſeaſon; and as the ſkin of theſe animals, the only riches of the country, is given in exchange for all the commodities the inhabitants ſtand in need of, and ſerves to pay the annual tribute

tribute due to the crown, it is eaſy to conceive the enormity of a crime that deprives the Kamtſchadales of advantages ſo important. The Coſſacks accordingly were at great pains to cut down the graſs round the fire place, and before their departure, to dig a deep hole to receive the aſhes, which they extinguiſhed by covering them with earth well moiſtened with water. During this day's journey they ſaw no quadruped but a hare, which was almoſt white: neither bear, argali *, nor reindeer, made its appearance, although theſe animals are very common in the country. The next morning they roſe at break of day, and continued their journey. It had ſnowed hard during the night, and, what was ſtill worſe, a thick fog covered the volcanic mountain, the foot of which our natural philoſophers did not reach till three o'clock in the afternoon. Their guides, according to agreement, ſtopped as ſoon as they reached the limits of the vegetative earth, pitched their tents, and lighted a fire. That night's reſt was a neceſſary preparative to the fatigues of the next day.

* This animal is the mountain-ſheep, or *Capra Ammon* of the Linnean ſyſtem. It is ſuppoſed to exiſt in no part of Europe but Corſica and Sardinia, and to be the ſame of which a living ſpecimen exiſted a few years ago in the Prince of Conde's collection at Chantille. It was there called *Mouffoli*, and was conſidered by M. Buffon as the parent ſtock whence all the varieties of domeſtic ſheep are ſprung. T.

At

At ſix o'clock in the morning Meſſieurs Bernizet, Mongés, and Receveur, began to aſcend the ſteep, and did not ſtop till three in the afternoon, when they reached the very edge of the crater, but at the lowermoſt part. They had been often obliged to have recourſe to their hands in order to ſupport themſelves among the broken rocks, the intervals between them being ſometimes very dangerous precipices. All the ſubſtances of which the mountain is compoſed are lavas more or leſs porous, and almoſt in the ſtate of pumice-ſtone. At the ſummit they met with gypſeous ſtones, and cryſtallized ſulphur; but the latter was much leſs beautiful than that of the peak of Teneriffe. In general, indeed, the ſchorls, and all the other ſtones they found there, were much inferior in beauty to thoſe of that ancient volcano, which has not been in a ſtate of eruption for a century paſt, whereas the Kamtſchadalian mountain threw up ſtones and aſhes in 1778, during captain Clerke's ſtay in the bay of Avatſcha. They brought back with them, however, ſome tolerable ſpecimens of chryſolite; but they encountered ſuch bad weather, and paſſed over ſo rough a road, that their being able to add a new weight to that of the barometers, thermometers, and other inſtruments, is truly aſtoniſhing. Their horizon never extended beyond a muſket-ſhot, except for a few minutes only, when they perceived the bay of Avatſcha, and the frigates, which from

from that elevation appeared no bigger than ſmall canoes. Their barometer upon the edge of the crater fell to nineteen inches, eleven lines, and $\frac{2}{10}$, while ours on board the frigates, where we were making hourly obſervations, pointed at the very ſame time to twenty-ſeven inches nine lines $\frac{2}{10}$. Their thermometer was two degrees and a half below the freezing point, and differed no leſs than twelve degrees from the temperature at the water-ſide. Thus, admitting the calculations of the natural philoſophers, who believe in this mode of meaſuring elevations, and making the requiſite corrections by the thermometer, the travellers muſt have aſcended about fifteen hundred toiſes, a prodigious height, conſidering the difficulties they had to ſurmount. But their views were ſo fruſtrated by fogs, that they reſolved to go over the ſame ground again the following day, if the weather ſhould be more favourable, difficulties having only increaſed their ardour; and with this courageous determination deſcended the mountain, and repaired to their tents. The night being already come on, their guides had ſaid prayers for their ſouls, and ſwallowed a part of the liquor, for which they ſuppoſed that dead men could no longer have occaſion. The lieutenant, when informed on their return of this haſty proceeding, ordered the moſt culpable to be puniſhed with a hundred ſtripes, which were duly adminiſtered before we knew any thing of the matter, and conſequently

ſequently before it was poſſible for us to ſolicit their pardon. The night, after this journey to the mountain's top, was dreadful: the fall of ſnow redoubled, and in a few hours covered the earth ſeveral feet deep. This forced them to give up all idea of executing the plan of the preceding afternoon, and that very evening they arrived at the village of St. Peter and St. Paul, after a march of eight leagues, which the natural declivity of the ground rendered leſs fatiguing than they had found it before.

While our mineralogiſts and aſtronomers were making ſuch good uſe of their time, we filled our caſks with water, and our hold with wood, and cut and dried hay for the live ſtock we expected; for we had now only one ſheep left. The lieutenant had written to Mr. Kaſloff, begging him to collect as many oxen as he could: he calculated with ſorrow, that it was impoſſible for us to wait for thoſe that were no doubt coming from Verknei by order of the governor, as it would require at leaſt ſix weeks for their conveyance. The indifference of the inhabitants of Kamtſchatka in regard to cattle has prevented their multiplying in the ſouthern part of that peninſula, where, with a little care, they might ſoon be as abundant as in Ireland. The fineſt and thickeſt graſs grows in natural meadows to the height of more than four feet; and an immenſe quantity of hay might be made for the winter, which in that climate laſts between ſeven

and eight months. But the Kamtſchadales are incapable of ſuch cares: it would be neceſſary to have barns, and vaſt ſtables ſheltered from the cold; while to them it appears far more commodious to live upon the produce of their hunting and fiſhing, particularly upon the ſalmon, which comes every year at the appointed time, like the manna of the deſert, to fill their nets, and inſures them a plentiful ſubſiſtence till the return of the ſeaſon. The Coſſacks, and the Ruſſians, who are better ſoldiers than farmers, have adopted the ſame method. The lieutenant and the ſerjeant alone had little gardens for the cultivation of potatoes and turnips; but neither their exhortation, nor their example, had any influence over their countrymen, who ate potatoes with an excellent reliſh, but who, to procure them, would not have conſented to take any farther trouble than that of pulling them up, in caſe nature had offered them ſpontaneouſly, like *ſaranne* *, garlick, and eſpecially the berries, of which they make agreeable drinks, and ſweetmeats that they reſerve for the winter ſeaſon. Our European ſeeds having kept very well, we gave a great quantity of them to Mr. Schmaleff, to the lieutenant, and to the ſerjeant; and hope on ſome future day to hear that they have retained their vegetative power. In the midſt

* A ſpecies of lily peculiar to Siberia and Kamtſchatka. T.

of

of our labours we found time for pleaſure; and made ſeveral hunting parties on the rivers Avatſcha and Paratounka, being very deſirous of getting a ſhot at the bears, rein-deer, or argali. We were obliged, however, to be contented with a few ducks, or rather teal, a paltry ſort of game, which ill repaid our long and fatiguing excurſions. We were more fortunate through the medium of our friends the Kamtſchadales, who brought us, during our ſtay, four bears, an elk, and a rein-deer, with ſuch a quantity of divers, and other wild fowl, that we diſtributed them among our crews, who began already to be tired of fiſh. A ſingle caſt of the net almoſt cloſe alongſide of our frigates would have ſufficed for the ſubſiſtence of half a dozen ſhips; but there was little variety of ſpecies, the fiſh taken being ſeldom any thing but ſmall cod, herrings, plaice, and ſalmon. I gave orders to ſalt only a few barrels, becauſe it was repreſented to me, that fiſh ſo ſmall and tender could not reſiſt the corroſive activity of the ſalt; and that it was better to preſerve our ſtock of that article for the hogs we ſhould find in the iſlands of the South ſea. While we were paſſing our time in a manner which appeared very pleaſant after the fatigues we had recently undergone in exploring the coaſts of Oku-Jeſſo and Tartary, Mr. Kaſloff had ſet off for the harbour of St. Peter and St. Paul; but he travelled ſlowly, becauſe he wiſhed to examine every thing, the object of his

journey

journey being to eſtabliſh the beſt poſſible order in the adminiſtration of the province. He knew that a general plan could not be formed for that purpoſe till he had firſt inquired what the country produced, and what it might be made to produce by a mode of cultivation ſuitable to the climate. He wiſhed alſo to make himſelf acquainted with the ſtones, minerals, and in general with all the ſubſtances that compoſe the ſoil. His obſervations detained him a few days at the hot ſprings at twenty leagues diſtance from St. Peter and St. Paul, whence he brought ſeveral ſtones, and other volcanic matters, with a ſpecies of gum, which was analyzed by Mr. Monges. On his arrival, M. Kaſloff told us with great civility, that having learned by the public papers, that ſeveral able naturaliſts had embarked on board our frigates, he had been deſirous of availing himſelf of ſo fortunate a circumſtance, in order to learn the nature of the minerals of the peninſula, and thus to become a naturaliſt himſelf. The politeneſs of Mr. Kaſloff, and indeed the whole of his behaviour, was exactly the ſame as that of the beſt educated inhabitants of the largeſt cities in Europe. He ſpoke French; and was well informed concerning all the objects of our reſearch, as well in geography as in natural philoſophy. It is eaſy to conceive, that an intimate acquaintance between him and us was ſpeedily formed. The day after his arrival he

came

came to dine with me on board the Bouſſole, in company with Mr. Schmaleff, and the vicar of Paratounka. I ordered him to be ſaluted with thirteen guns. Our faces, which beſpoke better health even than that which we enjoyed at our departure from Europe, ſurpriſing him exceedingly, I told him, that we owed a little of it to our own care, and a great deal to the good living we had met with in his government. Mr. Kaſloff ſeemed to participate in our comfortable ſituation; but he expreſſed the greateſt concern at his inability to get together more than ſeven oxen before the time of our departure, which was too near at hand to admit of their being brought from the river of Kamtſchatka, a hundred leagues diſtant from St. Peter and St. Paul. For ſix months he had been in expectation of the veſſel that was to bring from Okhotſk the meal and other proviſion neceſſary for the garriſons in Kamtſchatka, and began to feel ſome anxiety for her fate. Our ſurpriſe at not receiving any letters was much leſſened when he told us, that ſince his departure from Okhotſk he had not received a ſingle expreſs. He added, that he was going to return by land, along the ſhores of the ſea of Okhotſk, a journey almoſt as long, and certainly attended with more difficulties than that from Okhotſk to Peterſburg.

The next day the governor, with all his *ſuite*, dined on board the Aſtrolabe, where he was alſo

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ſaluted with a diſcharge of thirteen guns; but he earneſtly requeſted, that this compliment might be paid him no more, that in future we might ſee one another with more eaſe and comfort.

It was perfectly impoſſible to make him accept the value of the oxen. In vain did we repreſent, that we had paid the whole of our expences at Manilla, notwithſtanding the ſtrict alliance between France and Spain. Mr. Kaſloff told us, that the principles of the Ruſſian government were different, and that his only regret was the having ſo little cattle at his diſpoſal. He invited us to a ball which he was to give the following day, on our account, to all the women, both Kamtſchadales and Ruſſians, of St. Peter and St. Paul's. If the aſſembly were not numerous, it was at leaſt extraordinary. Thirteen women, dreſſed in ſilken ſtuffs, ten of the number being Kamtſchadales, with broad faces, little eyes, and flat noſes, were ſitting on benches round the room. The Kamtſchadales as well as the Ruſſians had ſilk handkerchiefs tied round their heads, almoſt in the manner they are worn by the mulatto women in our Weſt India iſlands. The ball began with Ruſſian dances, of which the tunes were very pleaſing, and very much like the country dance called *the Coſſack*, that was in faſhion at Paris a few years ago. The Kamtſchadale dances that followed can only be compared to thoſe of the *con-*

vulſionnaires, at the famous tomb of St. Medard *, the dancers having occaſion for nothing but arms and ſhoulders, and ſcarcely for any legs at all. The Kamtſchadale females, by their convulſions, and contracted motions, inſpire the ſpectator with a painful ſenſation, which is ſtill more ſtrongly excited by the mournful cry that is drawn from the pit of their ſtomachs, and that ſerves as the only muſic to direct their movements. Their fatigue is ſuch during this exerciſe, that they are covered with perſpiration, and lie ſtretched out upon the floor, without the power of riſing. The abundant exhalations that emanate from their bodies perfume the whole apartment with a ſmell of oil and filth, to which European noſes are too little accuſtomed to find out its fragrance. As the dances of all theſe nations have ever been imitative, and in fact nothing but a ſort of pantomime, I aſked what two of the women, who had juſt taken ſuch violent exerciſe, had meant to expreſs. I was told that they had repreſented a bear-hunt. The woman who rolled on the ground acted the animal; and the other, who kept turning round her, the hunter; but if the bears could ſpeak, and were to ſee ſuch a pantomime, they would certainly complain of being ſo awkwardly imitated. This dance, almoſt as fa-

* The tomb of a pious abbé at Paris, where lame people were *cured* by being thrown into convulſions. T.

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figuing to the ſpectator as to the performer, was ſcarcely over, when a joyful exclamation announced the arrival of a courier from Okhotſk. He was the bearer of a large trunk filled with our packets. The ball was interrupted, and each of the females diſmiſſed with a glaſs of brandy, a refreſhment worthy of ſuch votaries of Terpſichore. Mr. Kaſloff, perceiving our impatience to learn the news of all that was intereſting to us in Europe, entreated us not to defer the pleaſure; conducted us to his own room; and retired, that he might not reſtrain the effuſion of the different ſentiments by which we might be affected, according to the news received by each from his family or friends. It was favourable to all, particularly to me, who, by a degree of favour to which I dared not to aſpire, had been promoted to the rank of commodore. The compliments every one was eager to make me ſoon reached Mr. Kaſloff, who was pleaſed to celebrate the event by a diſcharge of all the artillery of the place. To the laſt day of my life, I ſhall remember, with the ſtrongeſt emotions of gratitude, the marks of friendſhip and affection which I received from him upon this occaſion. I did not indeed paſs a moment with him that was not marked by ſome trait of kindneſs or attention. It is needleſs to ſay, that as ſince his arrival all the inhabitants of the country were hunting and fiſhing for us, we were unable to conſume the quantity

of proviſion furniſhed us. To this he added preſents for M. de Langle and myſelf. We were forced to accept a Kamtſchadalian ſled for the king's cabinet of curioſities, and two royal eagles for the menagerie, as well as a great number of ſable-ſkins. We offered him, in our turn, every thing that we thought uſeful or agreeable to him; but as we were only rich in commodities for the ſavage market, we had nothing worthy of ſuch a benefactor: we begged him, however, to accept the narrative of Cooke's third voyage, with which he was much pleaſed, eſpecially as he had in his *ſuite* almoſt all the perſonages whom the editor has brought forward upon the ſtage.—Mr. Schmaloff, the good vicar of Paratounka, and the unfortunate Ivaſchkin. To them he tranſlated all the paſſages that concerned them, and at the rehearſal of each they repeated that every word was ſtrictly true. The ſerjeant alone, who then commanded at the harbour of St. Peter and St. Paul, was dead. The others enjoyed the beſt ſtate of health, and ſtill inhabited the country, except major Behm, who had returned to Peterſburg, and Port, who reſided at Irkoutſk. I teſtified my ſurpriſe to Mr. Kaſloff at finding the aged Ivaſchkin in Kamtſchatka, the Engliſh accounts ſtating, that he had at length obtained permiſſion to go and live at Okhotſk.

We could not help feeling great concern for the fate of this unfortunate man, when told that his

only crime was ſome indiſcreet expreſſions concerning the empreſs Elizabeth, at the breaking up of a convivial party, when his reaſon was diſordered by wine. He was then under twenty, was an officer in the guards, belonged to a Ruſſian family of diſtinction, and could boaſt of a handſome face, which neither time nor misfortune have been able to alter. He was caſhiered, and baniſhed to the interior of Kamtſchatka, after having ſuffered the puniſhment of the knout, and had his noſtrils ſlit. The empreſs Catherine, whoſe attentions are carried as far as the victims of preceding reigns, granted this unfortunate man a pardon ſeveral years ago: but a ſtay of more than fifty years in the midſt of the vaſt foreſts of Kamtſchatka; the bitter recollection of the ignominious puniſhment he ſuffered; perhaps, alſo, a ſecret ſentiment of hatred againſt an authority which puniſhed ſo cruelly a fault, that was rendered excuſable by circumſtances; theſe various motives rendered him inſenſible to a tardy act of juſtice; and he purpoſed ending his days in Siberia. We begged him to accept ſome tobacco, powder, ſhot, cloth, and every thing, in ſhort, which we ſuppoſed uſeful to him. He had been educated at Paris, ſtill underſtood a little French, and recollected a number of words expreſſive of his gratitude. He loved Mr. Kaſloff like a father, and accompanied him in his journey out of affection; while the good governor treated him with an attention well

calculated to make him forget his misfortunes *. He did us the favour of pointing out the grave of M. de la Croyère, whom he had ſeen buried at Kamtſchatka in 1741. We placed over it the following inſcription, engraved on copper, and compoſed by M. Dagelet, a member, like himſelf, of the Academy of Sciences;

Here lies Louis de l'Iſle de la Croyère, of the Royal Academy of Sciences at Paris, who died in 1741, on his return from an expedition undertaken by command of the Czar, in order to explore the coaſt of America: as an aſtronomer and geographer, he was emulous of two brothers celebrated in the ſciences, and was deſerving of the regret of his country. In 1786, the Count

* The remembrance and the ſhame of an unjuſt puniſhment ſo purſued the unfortunate Ivaſchkin, that he determined to hide himſelf from the eyes of ſtrangers; and it was not till a week after the arrival of the frigates, that Leſſeps found means to diſcover him. The interpreter, affected by his ſituation, gave an account of it to La Pérouſe, who, admiring the noble diſpoſition of the old man, and pitying his misfortune, requeſted to ſee him. It was with difficulty, and by means of Mr. Kaſloff's influence over his mind, that he was prevailed on to quit his retreat. The amenity of manners of La Pérouſe ſoon inſpired Ivaſchin with the greateſt confidence; and the unfortunate man, who was ever mindful of the civilities he received, teſtified his gratitude ſtill more ſtrongly, when the French general made him a number of uſeful preſents, of which he was in the greateſt want.

This anecdote, which Leſſeps has related to me ſeveral times, is not out of its place here.—*(Fr. Edit.)*

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de la Pérouſe, commanding the king's frigates, the Bouſſole and Aſtrolabe, did honour to his memory by giving his name to an iſland near the places viſited by himſelf.

We alſo aſked Mr. Kaſloff's permiſſion to engrave upon a plate of the ſame metal the inſcription over the grave of captain Clerke, which was only written with a pencil upon wood, a matter too periſhable to perpetuate the memory of ſo eſtimable a navigator. The governor had the goodneſs to add to the permiſſion which he gave us a promiſe to erect without delay a monument more worthy of thoſe two celebrated men, who paid the debt of nature in the midſt of their arduous undertakings, at ſo great a diſtance from their native land. He told us, that M. de la Croyère had married at Tobolſk, and that his poſterity enjoyed a great deal of conſideration at that place. The hiſtory of the voyages of Behring, and captain Tſchirikow, were familiar to Mr. Kaſloff, who thence took occaſion to tell us, that he had left Mr. Billings at Okhotſk, charged by the ſtate to build two veſſels for the purpoſe of continuing the Ruſſian diſcoveries in the Northern ſeas. He had given orders, that all the means at his diſpoſal ſhould be employed to accelerate the expedition; but his zeal, his beſt endeavours, his earneſt deſire, to fulfil the wiſhes of the empreſs, did not ſuffice to overcome the obſtacles, which neceſſarily preſented

themſelves in a country almoſt as ſavage as on the firſt day of its diſcovery, and where labour is ſuſpended by the rigour of the climate for more than eight months in the year. He was of opinion, that it would have been more economical, and far more expeditious, to let Mr. Billings take his departure from ſome port in the Baltic, where he might have provided for all his wants for ſeveral years to come.

We took a plan of the bay of Avatſcha, or, more correctly ſpeaking, we verified that of the Engliſh, which is exceedingly correct; and M. Bernizet made a very elegant drawing of it, which he begged the governor to accept. M. Blondela alſo offered him a view of the Oſtrog; and the abbes Monges and Receveur made him a preſent of a ſmall box of acids for the analyſis of mineral waters, and the aſcertainment of the different ſubſtances of which the ſoil of Kamtſchatka is compoſed. Mr. Kaſloff was no ſtranger to the ſciences of chemiſtry and mineralogy: he had indeed a particular taſte for chemical experiments; but he convinced us, by reaſons of which the force is eaſily felt, that previouſly to attending to the minerals of an uncultivated country, it was the part of a wiſe and enlightened adminiſtration to endeavour to procure the inhabitants bread, by accuſtoming them to agricultural labours. The rapidity of vegetation beſpoke great fertility of ſoil, and he did not doubt, that it would produce abundant

dant crops of rye or barley, in caſe of the failure of wheat, which might be prevented from ſhooting by the ſeverity of the winter. He made us remark the promiſing appearance of ſeveral ſmall fields of potatoes, of which the ſeed had been brought from Irkoutſk a few years before; and purpoſed to adopt mild, though infallible means, of making farmers of the Ruſſians, Coſſacks, and Kamtſchadales. The ſmall-pox in 1769 ſwept away three fourths of the individuals of the latter nation, which is now reduced to leſs than four thouſand perſons, ſcattered over the whole of the peninſula; and which will ſpeedily diſappear altogether, by means of the continual mixture of the Ruſſians and Kamtſchadales, who frequently intermarry. A mongrel race, more laborious than the Ruſſians, who are only fit for ſoldiers, and much ſtronger, and of a form leſs diſgraceful to the hand of nature, than the Kamtſchadales, will ſpring from theſe marriages, and ſucceed the ancient inhabitants. The natives have already abandoned the *yourts*, in which they uſed to burrow like badgers during the whole of the winter, and where they breathed an air ſo foul as to occaſion a number of diſorders. The moſt opulent among them now build *iſbas*, or wooden houſes, in the manner of the Ruſſians. They are preciſely of the ſame form as the cottages of our peaſants; are divided into three little rooms; and are warmed by a brick

brick ſtove, that keeps up a degree of heat* inſupportable to perſons unaccuſtomed to it. The reſt paſs the winter as well as the ſummer in *balagans*, which are a kind of wooden pigeon-houſes, covered with thatch, and placed upon the top of poſts twelve or thirteen feet high, to which the women as well as the men climb by means of ladders that afford a footing very inſecure. But theſe latter buildings will ſoon diſappear; for the Kamtſchadales are of an imitative genius, and adopt almoſt all the cuſtoms of their conquerors. Already the women wear their hair, and are almoſt entirely dreſſed, in the manner of the Ruſſians, whoſe language prevails in all the *oſtrogs*; a fortunate circumſtance, ſince each Kamtſchadalian village ſpoke a different jargon, the inhabitants of one hamlet not underſtanding that of the next. It may be ſaid in praiſe of the Ruſſians, that, though they have eſtabliſhed a deſpotic government in this rude climate, it is tempered by a mildneſs and equity, that render its inconveniencies unfelt. They have no reproaches of atrocity to make themſelves, like the Engliſh in Bengal, and the Spaniards in Mexico and Peru. The taxes they levy on the Kamtſchadales are ſo light, that they can only be conſidered as a mark of gratitude towards the ſovereign, the produce of half a day's hunting acquitting

* Not leſs than thirty degrees of Reaumur's thermometer.

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the impoſts of a year It is ſurpriſing to ſee in cottages, to all appearance more miſerable than thoſe of the moſt wretched hamlets in our mountainous provinces, a quantity of ſpecies in circulation, which appears the more conſiderable, becauſe it exiſts among ſo ſmall a number of inhabitants. They conſume ſo few commodities of Ruſſia and China, that the balance of trade is entirely in their favour, and that it is abſolutely neceſſary to pay them the difference in rubles. Furs at Kamtſchatka are at a much higher price than at Canton, which proves, that as yet the market of Kiatcha has not felt the advantageous effect of the new channel opened in China. The Chineſe merchants are, no doubt, careful, to let theſe furs run off in an imperceptible ſtream, and thus to make enormous gains; for at Macao they bought of us for ten piaſtres what was worth a hundred and twenty at Pekin. An otter ſkin is worth at St. Peter and St. Paul's thirty rubles; a ſable three or four: the price of fox ſkins cannot be fixed, I do not mean black foxes, which are too ſcarce to become the ſubject of calculation, and which are ſold for more than a hundred rubles a-piece. The white and grey vary from two to twenty rubles according as they approach to black or red, which laſt only differ from thoſe of France by the ſoftneſs and thickneſs of their fur.

The Engliſh, who, by the happy conſtitution of their company, have it in their power to leave to

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the private trade of India all the activity of which it is ſuſceptible, ſent a ſmall veſſel laſt year to Kamtſchatka. It was fitted out by a commercial houſe of Bengal, and commanded by captain Peters, who ſent colonel Kaſloff a letter in French, which he gave me to read. The Engliſh captain, upon the plea of the ſtrict alliance which unites the two courts in Europe, requeſted permiſſion to trade with Kamtſchatka, by bringing thither the different commodities of India and China, ſuch as ſtuffs, ſugar, tea, and arrack, and taking the furs of the country in return. Mr. Kaſloff was too enlightened a man not to perceive that ſuch a propoſition was ruinous to the commerce of Ruſſia, which ſold the ſame articles to the Kamtſchadales at a great profit, and made a ſtill greater upon the ſkins which the Engliſh wiſhed to export; but he knew alſo, that certain limited permiſſions had ſometimes been given to the detriment of the empire at large, for the increaſe of a colony, which afterwards enriches the mother country, when it has riſen to ſuch a pitch as to have no farther occaſion for foreign commerce. Theſe conſiderations prevented Mr. Kaſloff from deciding the queſtion; and he permitted the Engliſh to tranſmit their propoſition to the court of Peterſburg. He was ſenſible however, that, even if their requeſt were granted, the country conſumed too little of the commodities of India and China, and found too good a market for its furs at Kiatcha, for the Bengal merchants

merchants to find it a profitable ſpeculation. Beſides, the very veſſel that brought theſe commercial overtures was wrecked on Copper Iſland, a few days after going out of the bay of Avatſcha, and only two men ſaved, to whom I ſpoke, and furniſhed ſome articles of clothing, of which they ſtood in great need. Thus captain Cook's ſhips and our own are the only ones which have yet made a fortunate voyage to this part of Aſia.

It would be incumbent on me to give the reader a more particular account of Kamtſchatka, if the works of Coxe and Steller did not afford ample ſatisfaction *. The editor of *captain Cook's third voyage* has had recourſe to theſe ſources, and has given a new degree of intereſt to every thing relative to the country, about which more has been written than concerning ſeveral of the interior provinces of Europe, and which, as to climate and the productions of the ſoil, may be compared to the coaſt of Labrador in the vicinity of the Straits of Belle-Iſle; but the men, like the animals, are there very different. The Kamtſchadales appeared to me the ſame people as thoſe of the bay of Caſtries, upon the coaſt of Tartary. Their mildneſs and their probity are the

* Very curious particulars, which deſerve to be compared with thoſe given by Coxe and Steller, have been furniſhed by Leſſeps in his intereſting *Travels from Kamtſchatka to France*, publiſhed in Engliſh by Johnſon, St. Paul's Church Yard.

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ſame, and their perſons are very little different. They ought then no more to be compared to the Eſquimaux Indians, than the ſables of Kamtſchatka to the martins of Canada.

The bay of Avatſcha is certainly the fineſt, the moſt convenient, and the ſafeſt, that is to be met with in any part of the world. The entrance is narrow, and ſhips would be forced to paſs under the guns of the forts that might be eaſily erected. The bottom is mud, and excellent holding ground. Two vaſt harbours, one on the eaſtern ſide, the other on the weſtern, are capable of containing all the ſhips of the French and Engliſh navy. The rivers of Avatſcha and Paratounka fall into this bay, but they are choaked up with ſand-banks, and can only be entered at the time of high water. The village of St. Peter and St Paul is ſituated upon a tongue of land, which, like a jetty made by human art, forms behind the village a little port, ſhut in like an amphitheatre, in which three or four veſſels might lie up for the winter. The entrance of this ſort of baſon is more than twenty-five toiſes wide; and nature can afford nothing more ſafe or commodious. It is on its ſhore that Mr. Kaſloff purpoſes laying down the plan of a city, which ſome time or other will be the capital of Kamtſchatka, and perhaps the centre of an extenſive trade with China, Japan, the Phillippines, and America. A vaſt pond of freſh water is ſituated northward of the ſite of this projected city; and at

only three hundred toiſes diſtance run a number of ſtreamlets, the eaſy union of which would give the ground all the advantages neceſſary to a great eſtabliſhment. Of theſe advantages Mr. Kaſloff underſtood the value; "but firſt," ſaid he a thouſand times over, "we muſt have bread and hands, and our ſtock of both of them is very ſmall." He had, however, given orders, which announced a ſpeedy union of the other *oſtrogs* to that of St. Peter and St. Paul, where it was his intention immediately to build a church. The Greek religion has been eſtabliſhed among the Kamtſchadales without perſecution or violence, and with extraordinary facility. The vicar of Paratounka is the ſon of a Kamtſchadale and of a Ruſſian woman. He delivers his prayers and catechiſm with a tone of feeling very much to the taſte of the aborigines, who reward his cares with offerings and alms, but pay no tithes. The canons of the Greek church permit [illegible] prieſts to marry, we may conclude that the morals of the country clergymen are ſo much the better. I believe them, however, to be very ignorant; and do not ſuppoſe, that for a long time to come they will ſtand in need of greater knowledge. The daughter, the wife, and the ſiſter of the vicar, were the beſt dancers of all the women, and appeared to enjoy the beſt ſtate of health. The worthy prieſt knew that we were good catholics, which procured us an ample aſperſion of holy water; and he alſo made us kiſs

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the croſs that was carried by his clerk: theſe ceremonies were performed in the midſt of the village. His parſonage-houſe was a tent, and his altar in the open air; but his uſual abode is Paratounka, and he only came to St. Peter and St. Paul's to pay us a viſit.

He communicated to us a number of particulars concerning the Kuriles, of which he is alſo vicar, and of which he makes the tour once a year. The Ruſſians have found it convenient to ſubſtitute numbers to the ancient names of thoſe iſlands, concerning which authors are much at variance with one another. They now call them N° 1, N° 2, &c., as high as twenty-one, which laſt terminates the pretenſions of Ruſſia. According to the report of the vicar, it is very likely, that this laſt is the iſland of Marikan; but I am not very ſure of it, becauſe the good prieſt was exceedingly diffuſe. We had, however, an interpreter who underſtood the Ruſſian language as well as French; but Mr. Leſſeps thought, that the good prieſt did not underſtand himſelf. The following particulars, concerning which he did not vary, may be nevertheleſs conſidered as almoſt certain. Of the twenty-one iſlands belonging to Ruſſia, four only are inhabited—the firſt, the ſecond, the thirteenth, and the fourteenth. The laſt two may indeed be counted only as one, becauſe the inhabitants all paſs the winter upon N° 14, and return to N° 13 to paſs the ſummer months. The

others

others are entirely uninhabited, the islanders only landing there occasionally from their canoes for the sake of hunting foxes and otters. Several of these last mentioned islands are no better than large rocks, and there is not a tree on any one of them. The currents are very violent between the islands, particularly at the entrance of the channels, several of which are blocked up by rocks on a level with the sea. The vicar never made the voyage from Avatscha to the Kuriles in any thing but a canoe, which the Russians call *baidar*; and he told us, that he had several times been very nearly lost, and still nearer dying of hunger, having been driven out of sight of land; but he is persuaded, that his holy water and his cassock delivered him from the danger. The population of the four inhabited islands amounts at most to fourteen hundred souls. The inhabitants are very hairy, wear long beards, and live entirely upon seals, fish, and the produce of the chase. They have just been exempted for ten years from the tribute usually paid to Russia, because the number of otters on their islands is very much diminished. These poor people are good, hospitable, and docile, and have all embraced the Christian religion. The more southern and independent islanders sometimes pass in canoes the channels that separate them from the Russian Kuriles, in order to give some of the commodities of Japan in exchange for peltries. These islands are part of Mr. Kasloff's government; but

as the landing is very difficult, and as they are of little conſequence to Ruſſia, he did not purpoſe viſiting them; and, although he expreſſed ſome regret for having left a chart of them at Bolcheretſk, he did not appear to put much confidence in its accuracy. At the ſame time he ſeemed to place ſo much in us, that we could have wiſhed to communicate to him the particulars of our expedition. His remarkable diſcretion in that reſpect deſerves our praiſe.

We gave him, however, ſome little account of our voyage; and did not conceal from him, that we had doubled Cape Horn, viſited the north-weſt coaſt of America, and put in at China, and the Philippines, whence we were come to Kamtſchatka. We did not allow ourſelves to enter into any farther details, but I aſſured him, that if the publication of our diſcoveries ſhould be ordered by government, I would ſend him one of the firſt copies of the work. I had already obtained permiſſion to ſend my journal to France by M. Leſſeps, our young interpreter. My confidence in Mr. Kaſloff and in the Ruſſian government was ſuch, that I ſhould have been free from all uneaſineſs if I had been obliged to put my packet in the poſt-office; but I thought I ſhould render a ſervice to my country by giving M. de Leſſeps an opportunity of making his own obſervations on the different provinces of the Ruſſian empire, where he will probably on ſome future day

fill

fill the place of his father, our conſul-general at Peterſburg. Mr. Kaſloff told me kindly, that he would take him as his aid-de-camp as far as Okhotſk, whence he would furniſh him with the means of proceeding to Peterſburg, and that from the preſent moment he ſhould conſider him as one of his family. So great a favour, ſo obligingly conferred, is felt more ſtrongly than it is expreſſed; and it made us lament his abſence at Bolcheretzk during part of our ſtay in the bay of Avatſcha.

The cold gave us warning to depart. The ground, which on our arrival on the 7th of September, was covered with the moſt beautiful verdure, was as yellow and as much parched up on the 25th of the ſame month, as it is in the environs of Paris at the latter end of December; while the mountains of two hundred toiſes elevation above the level of the ſea were covered with ſnow. I therefore gave orders to prepare every thing for our departure, and on the 29th got under way. Mr. Kaſloff came to take leave of us, and as the calm forced us to bring up in the middle of the bay, dined on board. I accompanied him on ſhore with M. de Langle and ſeveral officers, and there he gave us a good ſupper, and another ball. The next morning, at day-break, the wind having ſhifted to the northward, I made the ſignal for ſailing; and before we were well under way, heard a diſcharge of all the cannon of St. Peter and St.

Paul's. I ordered a return to be made to this ſalute, which was repeated when we were at the mouth of the bay, the governor having ſent a detachment of ſoldiers to pay us the honours of departure at the inſtant when we ſhould paſs the little battery to the north of the lighthouſe that ſtands at the entrance.

It was not without emotion that we parted with M. de Leſſeps, whoſe good qualities had endeared him to us all, and whom we left in a foreign land at the moment of his undertaking a journey equally long and laborious*. We carried away with us a grateful remembrance from this country, with the certitude that the laws of hoſpitality had never been more fully obſerved in any country, or in any age.

* I refer the curious reader for more ample details to de Leſſeps's journal: he will there ſee an intereſting account of all the interpreter underwent in the route from the harbour of St. Peter and St. Paul to Paris, and of the care he took to fulfil his miſſion, and to convey to France one of the moſt valuable parts of la Pérouſe's voyage.—*(Fr. Ed.)*

CHAPTER XXIII.

Summary account of Kamtſchatka.—Marks for ſailing in and out of the bay of Avatſcha.—We run down the latitude 37° 30′, for a ſpace of three hundred leagues, in ſearch of land, ſaid to be diſcovered by the Spaniards in 1620.—We croſs the line for the third time.—We make the iſland of Navigators after having paſſed by the iſland of Danger, diſcovered by Byron.—We are viſited by a number of canoes, barter with the Indians, and anchor at the iſland of Maouna.

(SEPTEMBER and OCTOBER 1787.)

IT is not to foreign navigators, that Ruſſia owes her diſcoveries and her eſtabliſhments on the coaſt of Oriental Tartary, and on that of the peninſula of Kamtſchatka. The Ruſſians, as eager after peltry as the Spaniards after gold and ſilver, have for a long time undertaken the longeſt and moſt difficult journies by land, in order to procure the valuable ſpoils of the ſable, the fox, and the ſea-otter; but being rather ſoldiers than hunters, they found it more convenient to impoſe a tribute upon the natives of the countries they ſubdued, than to ſhare with them in the fatigues of the chaſe.

They did not diſcover the peninſula of Kamtſchatka till towards the cloſe of the laſt century, their firſt expedition againſt the liberty of its wretched inhabitants having taken place in 1696. The authority of Ruſſia was not fully acknowledged throughout the peninſula till 1711, when the Kamtſchadales accepted the conditions of a tribute very little onerous, and ſcarcely ſufficing to pay the expences of adminiſtration. Three hundred ſables, two hundred red or grey fox, and a few otter ſkins, make up the whole revenue of Ruſſia in that part of Aſia, where ſhe ſtations about four hundred ſoldiers, moſtly Coſſacks and Siberians, and ſeveral officers who command in the different diſtricts.

The court of Ruſſia has ſeveral times changed the form of government in the peninſula. That which the Engliſh found eſtabliſhed in 1778 no longer exiſted in 1784. Kamtſchatka then became a province of the government of Okhotſk, which is itſelf a dependency of the ſovereign court of Irkoutſk.

The *oſtrog* of Bolcheretſk, formerly the capital of Kamtſchatka, where major Behm reſided at the time the Engliſh arrived, is now only governed by a ſerjeant of the name of Martinof. Mr. Kaborof, a lieutenant, commands, as I have already ſaid, at St. Peter and St. Paul's; major Elleonoff at Nijenei-Kamtſchatka, or the *oſtrog* of Lower Kamtſchatka;

Kamtſchatka; and laſtly Verknei, or Upper Kamtſchatka, is under the command of ſerjeant Momayeff. Theſe ſeveral commandants are under no reſponſibility to one another; but each renders his own account directly to the governor of Okhotſk, who has eſtabliſhed an inſpector with the rank of major, and with a particular command over the Kamtſchadales, no doubt to protect them againſt the preſumed oppreſſion of the military government.

This firſt view of the commerce of theſe countries would give but a very imperfect idea of the advantages that Ruſſia derives from its colonies in the eaſtern parts of Aſia, if the reader were not aware, that expeditions by land have been followed by voyages eaſtward of Kamtſchatka towards the coaſts of America. Thoſe of Behring, and Tſchirikow are known to all Europe. After the names of theſe men rendered famous by their adventurous expeditions, and by the misfortunes that eventually attended them, thoſe of ſeveral other navigators may be mentioned, who have added to the poſſeſſions of Ruſſia the Aleutian Iſlands, the cluſter to the eaſt known by the name of Oonalaſhka, and all the iſlands to the ſouth of the peninſula.

Captain Cook's laſt voyage ſuggeſted expeditions ſtill farther eaſtward; but I was told at Kamtſchatka, that the natives of the countries where the Ruſſians landed had refuſed to pay them tri-

bute, and even to have any dealing with them. The latter probably were injudicious enough to let them perceive the deſign they had formed of ſubduing them; and every one knows how proud the Americans are of their independence, and how jealous of their liberty.

Ruſſia has been at very little charge in extending her dominions. Commercial houſes fit out veſſels at Okhotſk, where they are built at enormous expence. They are from forty-five to fifty feet long, with a ſingle maſt in the middle, much like our cutters, and carry forty or fifty men, who are all better hunters than ſeamen. They ſail from Okhotſk in the month of June, generally paſs between the point of Lopatka, and the firſt of the Kuriles, ſteer eaſtward, and continue for three or four years to run from iſland to iſland, till they have either bought of the natives, or killed a ſufficient number of otters themſelves, to pay the expenſe of the out-fit, and to afford the merchants a profit of *cent per cent* upon the capital advanced.

Ruſſia has not yet made any permanent eſtabliſhment eaſtward of Kamtſchatka: each veſſel forms a temporary one in the port where it winters, and when it ſails either deſtroys or gives it up to ſome other veſſel belonging to the nation. The governor of Okhotſk ſtrictly enjoins the captains of theſe cutters to make all the iſlanders they viſit acknowledge the authority of Ruſſia, and he embarks

barks on board each veſſel a ſort of cuſtom-houſe officer commiſſioned to impoſe and levy a duty for the crown. I was told, that a miſſionary was to ſet off from Okhotſk without delay, in order to preach the Chriſtian religion to the people that have been ſubjugated, and thus to make them ſome ſort of compenſation by ſpiritual gifts for the tribute they exact by right of ſuperior power.

It is well known, that furs fetch a very high price at Kiatcha, upon the frontiers of China and Ruſſia; but it is only ſince the publication of Mr. Coxe's work, that we have been acquainted in Europe with the importance of that article of commerce, of which the exportation and importation fall little ſhort of eighteen millions of livres * a year. I was aſſured that twenty-five veſſels, the crews amounting to about a thouſand men, Kamtſchadales, Ruſſians, and Coſſacks, had been ſent this very year in queſt of furs to the eaſtward of Kamtſchatka. Theſe veſſels will diſperſe themſelves from Cook's river to Behring's iſland. Long experience has taught them, that the otters ſcarcely ever frequent the latitudes farther north than the 60th degree; a circumſtance that directs all the adventurers towards the peninſula of Alaſhka, or ſtill farther eaſt, but never to Behring's ſtraits, which are obſtructed by everlaſting ice.

When theſe veſſels come back they ſometimes put in at the bay of Avatſcha; but always return

* £. 750,000.

ultimately

ultimately to Okhotſk, the uſual reſidence of their owners, and of the merchants who go to trade directly with the Chineſe upon the frontiers of the two empires. As the ice leaves the entrance of the bay of Avatſcha open at all times, the Ruſſian navigators generally put in there when the ſeaſon is too far advanced for them to arrive at Okhotſk before the end of September; a very wiſe regulation of the empreſs of Ruſſia having forbidden the navigation of the ſea of Okhotſk after that epoch, at which thoſe hurricanes and gales of wind begin that have occaſioned very frequent ſhipwrecks in that quarter.

The ice never extends in the bay of Avatſcha farther than three or four hundred toiſes from the ſhore; and it often happens, during the winter, that the land winds drift away that which blocks up the mouths of the rivers of Paratounka and Avatſcha. The navigation of theſe rivers then becomes practicable.

As the winter is generally leſs ſevere in Kamtſchatka, than it is at Peterſburg, and in ſeveral provinces of the Ruſſian empire, the Ruſſians generally ſpeak of it as the French do of that of Provence; but the ſnow which ſurrounded us as early as the 20th of September, the white froſt that covered the ground every morning, and the graſs, as completely withered as that of the environs of Paris in the month of January, all combined to indicate a winter

ter of which the ſeverity muſt be inſupportable to the inhabitants of the ſouth of Europe.

We were, however, in ſome reſpects leſs chilly than the Ruſſian and Kamtſchadale inhabitants of the *oſtrog* of St. Peter and St. Paul. They were clothed with the thickeſt ſkins, and the temperature of their *iſbas*, in which ſtoves are conſtantly burning, was from twenty-eight to thirty degrees above the freezing point. The heated air deprived us of reſpiration, and obliged the lieutenant to open the windows whenever we were in his apartment. The people of this country have inured themſelves to the extremes of heat and cold. It is well known, that their cuſtom, in Europe as well as in Aſia, is to go into vapour baths, come out covered with perſpiration, and immediately roll themſelves in the ſnow. The *oſtrog* of St. Peter had two of theſe public baths, into which I went before the fires were lighted. They conſiſt of a very low room, in the middle of which is an oven conſtructed of ſtones, without cement, and heated like thoſe intended to bake bread. Its arched roof is ſurrounded by ſeats one above another, like an amphitheatre, for thoſe who wiſh to bathe, ſo that the heat is greater or leſs, according as the perſon is placed upon a higher or lower bench. Water thrown upon the top of the roof, when heated red-hot by the fire underneath, is converted inſtantly into vapour, and excites the moſt profuſe perſpiration.

ration. The Kamtſchadales have borrowed this cuſtom, as well as many others, from their conquerors; and ere long the primitive character that diſtinguiſhed them ſo ſtrongly from the Ruſſians will be entirely effaced. Their population at preſent does not exceed four thouſand ſouls, ſcattered over the whole peninſula, which extends from the fifty-firſt to the ſixty-third degree of latitude, and occupies ſeveral degrees of longitude. Hence it appears, that there are ſeveral ſquare leagues for each individual. They cultivate no one production of the earth; and the preference they give to dogs over rein-deer in drawing their ſledges, prevents their breeding either hogs, ſheep, rein-deer, horſes, or oxen, becauſe theſe animals would be devoured before they could acquire ſufficient ſtrength to defend themſelves. Fiſh is the principal food of their draught dogs, which go notwithſtanding as much as twenty-four leagues a day. They are never fed till they come to their journey's end.

The reader has already ſeen, that this manner of travelling is not peculiar to the Kamtſchadales. The people of Tchoka, and the Tartars of the bay of Caſtries uſe no other cattle. We were exceedingly deſirous to know whether the Ruſſians were at all acquainted with thoſe countries, and were told by Mr. Kaſloff, that the Okhotſk veſſels had ſeveral times perceived the north end of the iſland,

iſland, at the mouth of the great river Amur, but that they had never landed, becauſe it is beyond the limits of the Ruſſian eſtabliſhments upon that coaſt.

The bay of Avatſcha very much reſembles that of Breſt; but it affords much better holding ground, its bottom being mud. Its entrance is alſo narrower, and conſequently more eaſy to defend. Our lithologiſts and botaniſts found neither mineral nor vegetable ſubſtances upon its ſhores, but ſuch as are exceedingly common in Europe. The Engliſh have publiſhed a very good chart of this bay. Attention ſhould be paid to two banks, ſituated eaſt and weſt of the entrance, and ſeparated by a large channel for veſſels to paſs through. They may be avoided with certainty by keeping two inſulated rocks on the eaſt coaſt open with the light-houſe point, and by ſhutting in with the weſt coaſt a large rock on the larboard hand, which is only ſeparated from the land by a paſſage not more than a cable's length in width. All the anchorage in the bay is equally good; and ſhips may approach more or leſs near to the *oſtrog*, according to the intercourſe they wiſh to keep up with the ſhore.

According to the obſervations of M. Dagelet, the houſe of lieutenant Kabroof is ſituated in 53° 1′ north latitude, and 156° 30′ eaſt longitude. The tides are very regular. It is high water at half paſt three, at the time of full and change of the

moon; the riſe in the harbour being four feet. We obſerved that our time-keeper, No. 19, loſt 10″ a day, which differed 2″ from the daily loſs attributed to the ſame at Cavite ſix months before.

The north wind, which was ſo favourable to our ſailing out of the bay of Avatſcha, deſerted us when we were two leagues in the offing. It ſhifted to the weſt, and continued to blow with an obſtinacy and violence, which did not permit me to follow my plan of reconnoitring, and laying down the latitude and longitude of the Kuriles, as far as the iſle of Marikan. The gales of wind and ſqualls followed each other ſo rapidly, that I was often obliged to lay to under the foreſail, and found myſelf driven eighty leagues from the land. I did not attempt to ſtruggle againſt theſe obſtacles, the reconnoitring of the Kurile iſlands being of little importance; but ſteered a courſe ſo calculated as to croſs the parallel of latitude of 37° 30′ in the longitude of 165°, where ſeveral geographers have placed a large, rich, and well-peopled iſland, ſaid to have been diſcovered by the Spaniards in 1620. A ſearch after this iſland made part of captain Uriès' inſtructions; and there is alſo a paper with ſome particulars concerning it, in the fourth volume of the academical collection, under the foreign head. It appeared to me, that among the different objects of reſearch rather indicated than ordered by my inſtructions, this deſerved a preference. I did

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not reach the latitude 37° 30′ till the 14th, at midnight, in the courſe of which day we had ſeen ſeveral ſmall land birds of the linnet genus ſettle upon our rigging. The ſame evening we alſo perceived two flights of ducks, or corvorants, birds which ſcarcely ever wander far from land. The weather was very clear, and in both frigates we had men conſtantly upon the look-out from the maſt-head, a reward ſomewhat conſiderable being promiſed to him who ſhould firſt ſee land. This motive of emulation was little neceſſary, every ſailor being eager for the honour of diſcovering an iſland, which, according to my promiſe, was to bear his name. But, notwithſtanding the certain indications of our being near land, we diſcovered nothing, although the horizon was very extenſive. I ſuppoſed that the iſland in queſtion muſt lie farther ſouth, and that the violent gales that had recently blown from that quarter, had driven northward the little birds that we had obſerved to ſettle upon our rigging. I therefore ſteered a ſouth courſe till midnight. Being then exactly, as I have ſaid above, in 37°. 30′ latitude north, I gave directions to ſteer due eaſt, under very eaſy ſail, waiting for the day with the utmoſt impatience. It was done, and we again ſaw two ſmall birds. I continued an eaſt courſe, and the ſame evening a large turtle paſſed along-ſide of the ſhip. The following day, ſtill running down the ſame parallel towards the eaſt,

we ſaw a bird, ſmaller than the European wren, perched upon the main-top-ſail yard arm, and a third flight of ducks. Thus were our hopes every moment kept up; but we never had the good fortune to ſee them realized*.

During this ſearch we met with a real misfortune. A ſeaman fell overboard from the Aſtrolabe while furling the mizen-top-gallant-ſail. Whether he was wounded in his fall, or could not ſwim, I know not; but he never roſe again, and all our efforts to ſave him were of no avail.

The ſigns of land continued on the 18th and 19th, although we had made a long run to the eaſtward. We perceived flights of ducks and other birds that frequent the ſhore: a ſoldier even pretended that he ſaw ſome ſmall bits of ſea-weed *(goemon)* float by; but as this fact was ſupported by no other teſtimony, we rejected it unanimouſly, preſerving nevertheleſs the

* Was la Pérouſe ignorant, that the parallel of 37° 30′ north had been run down to no purpoſe, for a ſpace of 450 miles, towards the eaſt of Japan, by the ſhip Kaſtricum? Or was he afraid to depart from his inſtructions, and from the indication given him in the forty-eighth geographical note inſerted in the firſt volume? Whatever motive may have determined his conduct, it is matter of regret, that la Pérouſe did not follow the 37th or 38th parallel of latitude. The land diſcovered in former times having been almoſt all diſcovered in our own, this iſland will certainly be the object of new reſearches; and there is reaſon to hope it will be found by running down the parallel of 36° 30′.—*(Fr. Ed.)*

ſtrongeſt

ſtrongeſt hopes of ſpeedily making land. Scarcely had we reached the 175th degree of eaſt longitude, when all theſe ſigns diſappeared. I continued, however, the ſame courſe till the 22d at noon; but at that epoch the longitude indicated by the time keeper, No. 19, placing me at 20′ beyond 180° eaſt of Paris, the limits preſcribed for the ſearch of the iſland in queſtion, I ordered a ſouther-ly courſe to be ſteered, in order to meet with leſs ſtormy ſeas. Since our departure from Kamtſchatka we had conſtantly navigated in the midſt of a very heavy ſwell; and at one time a ſea waſhed away our jolly-boat, though laſhed to the gangway, and threw more than twenty tons of water aboard. Theſe little accidents would hardly have been noticed, had we been fortunate enough to meet with the iſland, the ſearch of which had coſt us ſo much fatigue, and which certainly exiſts in the neighbourhood of the courſe we ſteered. The ſigns of land were too frequent, and of too decided a nature, to permit us to doubt it. I am inclined to think, that we ran down too northerly a parallel; and were I to begin the ſame ſearch again, I ſhould follow the parallel of 35°, from 160 to 170° of longitude. In that ſpace it was, that we perceived the greateſt number of land birds, which appeared to me to come from the ſouth, and to have been driven to ſea by the violence of the gales that had blown from that quarter. The farther objects of

my voyage did not give me time to verify this conjecture, by running as far weſtward as we had juſt run eaſt. The wind, which blows almoſt invariably from the weſt, would have made me conſume more than two months in a paſſage that I had made in eight days. I therefore ſhaped my courſe towards the ſouthern hemiſphere, in that vaſt field of diſcoveries where the tracks of Quiros, Mendana, Taſman, &c. are croſſed in every direction by thoſe of modern navigators, and where every one of the latter has added ſome new iſlands to thoſe which were already known; but concerning which the curioſity of Europeans ſtill deſired more circumſtantial details, than thoſe given in the narratives of the earlier navigators. It is well known, that in that vaſt part of the great equatorial ocean there exiſts a zone, from 12 to 15 degrees, from north to ſouth, and of 140 degrees from eaſt to weſt, interſperſed with iſlands, which are upon the terreſtrial globe what the milky way is in the heavens. The language and manners of their inhabitants are no longer unknown to us; and the obſervations that have been made by the laſt circumnavigators even enable us to form probable conjectures concerning the origin of theſe people, which may be attributed to the Malays, as that of the different colonies on the coaſts of Africa and Spain is to the Phenicians. It was in this Archipelago that my inſtructions directed me to navigate during the third year of my expedition.

expedition. The weſtern and ſouthern part of New Caledonia, of which the eaſt coaſt was diſcovered by captain Cook in his ſecond voyage; the ſouthern iſles of the Archipelago of the Arſacides, of which the northern ones were ſeen by Surville; the northern part of the land of la Louiſiade, which M. Bougainville had been unable to explore, but of which he had been the firſt to run down the ſouth-eaſt coaſt; ſuch were the geographical points, that had principally attracted the attention of government; and I was enjoined to mark their limits, and to determine their preciſe latitude and longitude. The Society, and Friendly iſlands, the New Hebrides, &c. were known, and could no longer excite the curioſity of Europe; but as they afforded reſources in proviſion, I was allowed to put in there according to the want I might be in; it having been preſumed with great reaſon, that, on leaving Kamtſchatka, I ſhould have a very ſmall proportion of freſh ſtock, which is ſo neceſſary for the preſervation of ſeamen's health.

It was impoſſible for me to get ſpeed to the ſouthward ſoon enough to avoid a gale of wind which blew from that quarter on the 23d of October. The ſea ran exceedingly high, and we were obliged to lay to all night under the fore-ſail. The winds were very variable, and the ſea very much agitated as far as the 30th degree of latitude, a parallel which we reached on the 29th of October.

The health of moſt of us was affected by the too ſudden paſſage from cold to intenſe heat; but we experienced only ſlight diſorders, which did not oblige any one to keep his bed.

On the firſt of November, being in 26° 27′ north latitude, and 175° 38′ eaſt longitude, we ſaw a great number of birds; among others, curlews and plovers, two ſpecies which never fly far from land. The weather was thick and ſqually; but all the parts of the horizon ſucceſſively cleared up, except towards the ſouth, where ſome large clouds remained conſtantly fixed; which made me think it likely that there was land in that point of the compaſs. I ſteered my courſe accordingly, and for two or three days we continued to ſee birds. By degrees, however, the ſigns of land left us; but it is probable, that we paſſed by ſome iſland or flat rock, of which we did not get ſight; but which chance will perhaps preſent to future navigators. We now began to enjoy a ſerene ſky, and it became at laſt poſſible to find the longitude by lunar obſervations, which we had not been able to do ſince our departure from Kamtſchatka. The longitude by obſervation was a degree farther weſt than that which was given by our time-keeper No. 19.

We caught ſeveral doradoes and two ſharks, and found them delicious eating, becauſe we were all reduced to ſalt pork, which began to ſuffer from the influence of a burning clime. We repeated our

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lunar obſervations, and the difference was conſtantly the ſame. Having at length reached the tropic, the ſky became clearer, and our horizon was of great extent; but we perceived no land, though we every day ſaw birds, which are never met with at a great diſtance from the ſhore. On the 4th of November, being in 23° 40′ north latitude, and in 175° 58′ 47″ of weſt longitude, according to a ſeries of obſervations made that very day, we caught a golden plover, which was ſtill moderately fat, and which could not have been wandering long at ſea. The 5th we croſſed our own tract from Monterey to Macao; the 6th that of captain Clerke from the Sandwich iſlands to Kamtſchatka, by which time the birds had entirely diſappeared. Our ſhips laboured exceedingly by reaſon of a heavy ſwell from the eaſt, which, like that from the weſt in the Atlantic ocean, conſtantly prevails in this vaſt ſea. Neither bonetas nor doradoes came in our way, nor any thing, indeed, but a few flying fiſh; a grievous circumſtance, as our freſh proviſion was entirely conſumed in conſequence of our depending rather too much upon the ſalt element for the improvement of our unpalateable fare. The 9th we paſſed by the ſouth point of the ſhoal, or flat of Villa Lobos, according at leaſt to the poſition aſſigned to it in the charts preſented to me by M. Fleurieu. I proportioned my canvas in ſuch a way as to croſs its latitude in the day-time; but as we perceived neither birds nor weeds, I am inclined

clined to think, that, if ſuch a ſhoal exiſt, it muſt be in a more weſtern poſition, the Spaniards having always placed their diſcoveries in the great Pacific ocean too near to the American coaſt. At this time the ſea became ſomewhat ſmoother, and the breezes more moderate; but the ſky was covered with thick clouds, and ſcarcely had we reached the 10° degree of north latitude, when it began to rain almoſt inceſſantly, at leaſt during the day; for the nights were tolerably fine. The heat was ſuffocating, and the hygrometer had never indicated more humidity ſince our departure from Europe. We were breathing an air deſtitute of elaſticity, which, joined to unwholeſome aliments, diminiſhed our ſtrength, and would have rendered us almoſt incapable of exertion, if circumſtances had required it. I redoubled my care to preſerve the health of the crew during this criſis, produced by too ſudden a paſſage from cold, to heat and humidity. I had coffee ſerved out every day for breakfaſt; and I ordered the ſhip to be dried and ventilated between decks; while the rain-water ſerved to waſh the ſailors ſhirts. Thus did we turn to account even the unfavourable temperature of the climate which we were obliged to croſs, and of which I dreaded the influence more than that of all the high latitudes that had occurred in the courſe of our voyage. On the 6th of November, for the firſt time we caught eight bonetas, which furniſhed a good repaſt to the whole crew, and to the officers, who, as well as myſelf,

myſelf, had no longer any proviſion but that of the hold. The rain and ſtorms ceaſed, and the heavy ſea ſubſided about the 15th, when we had reached the 5° of north latitude. We then enjoyed a clear ſky; a very extenſive horizon made us eaſy about the night's run; and the air was ſo pure, the heavens ſo ſerene, and the light thence reſulting ſo ſtrong, that we could have perceived any danger as plainly as in open day. This fine weather accompanied us beyond the equator, which we croſſed on the 21ſt of November, for the third time ſince we took our departure from Breſt. We had been three times at the diſtance of about 60° from it to the north or ſouth; and, according to the further plan of our voyage, we were not to reviſit the northern hemiſphere till we ſhould enter the Atlantic ocean in our way back to Europe. Nothing interrupted the monotony of this long run. We were ſteering a courſe nearly parallel to that which we had ſteered the preceding year in our paſſage from Eaſter iſland to thoſe that bear the name of Sandwich. During that paſſage we had been conſtantly ſurrounded with birds and bonetas, which afforded us wholeſome and abundant food: in the preſent one, on the contrary, a vaſt ſolitude reigned around us, both the air and water of this quarter of the globe being nearly deſtitute of inhabitants. On the 23d, however, we caught two

ſharks, which afforded two meals to the crew, and we ſhot on the ſame day a very lean curlew, apparently much fatigued. We ſuppoſed that it came from the duke of York's iſland, from which we were about 100 leagues diſtant. It was haſhed up and eaten at my table; and was ſcarcely better than the ſharks. In proportion as we advanced in the ſouthern hemiſphere, the noddies, man-of-war birds, terns, and tropic birds, flew more frequently round the ſhips. We took them for the harbingers of ſome iſland, which we were exceedingly impatient to fall in with; and murmured much at the fatality, that had prevented our making the ſmalleſt diſcovery in the long line we had run down ſince our departure from Kamtſchatka. Theſe birds, which became innumerable when we had reached the fourth degree of ſouth latitude, inſpired us every moment with the hopes of making land; but, although the horizon was of prodigious extent, none could we ſee. We made, it is true, but little way. While we were under the ſecond degree of ſouth latitude, the breeze abandoned us, and was ſucceeded by light airs of wind from N. to W. N. W., of which I availed myſelf to gain a little eaſting, being afraid of falling to leeward of the Friendly iſlands. During theſe calms we caught ſeveral ſharks, which we preferred to ſalt-meat, and ſhot ſea-birds, which we haſhed. Though very lean, and ſmelling and taſting of fiſh

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to a degree that was inſupportable, they appeared to us, in our preſent want of freſh proviſions almoſt as good as woodcocks. Black *goelettes*, and others entirely white, which I believe peculiar to the South ſea, as I never ſaw any in the Atlantic ocean, were ſo plenty that we killed more of them than of noddies, or man-of war birds. And yet the latter flew round the ſhips in ſuch numbers, eſpecially during the night, that we were ſtunned by the noiſe they made, and could with difficulty hear each other ſpeak upon the quarter-deck. Our ſport, which was tolerably ſucceſsful, puniſhed their inſults, and afforded us tolerable food; but when we had paſſed the 6° they entirely diſappeared. The light winds from N. W. to W., which had ſet in about the 3d degree of ſouth latitude, then gathered ſtrength, and did not give over blowing till we had reached the 12th. A heavy ſwell from the weſt rendered our navigation exceedingly fatiguing; our cordage, rotted by the conſtantly wet weather we had experienced while exploring the coaſt of Tartary, kept breaking every moment; and, as we were fearful of exhauſting our ſtock, was not replaced till the laſt extremity. Till the 2d of December, when we reached 10° 50′, ſqualls, ſtorms, and rain conſtantly accompanied our courſe. The wind, though ſtill blowing from the weſt, then grew more moderate; and as the weather cleared up, we were enabled to make lunar obſervations, in order to rectify the error of our time-

time-keepers. Since our departure from Kamtſchatka, they appeared to have loſt five minutes of time, or, in other words, to indicate the longitude 1° 15′ too far eaſt. According to the above aſtronomical obſervations, of which the reſult was 170° 7′ of longitude weſt, we paſſed exactly over the ſpot where Byron's iſlands of Danger are laid down; for we were exactly in their latitude: but as we neither ſaw land, nor the ſmalleſt ſign of there being any near us, it is evident, that their longitude has been miſtaken; which was the more eaſy, as Byron regulated his navigation by the defective method of a dead-reckoning. The following day, December the 2d, we were in 11° 34′ 47″ ſouth latitude, and 170° 7′ 1″ longitude weſt, according to aſtronomical obſervation, preciſely in the ſame parallel of latitude as Quiros's Iſland of the Handſome Nation, and one degree farther eaſt. I would willingly have run a few degrees weſtward in order to fall in with it; but the wind blew directly from that quarter; and the iſland is laid down in too uncertain a manner to be ſought for by working to windward. I therefore thought it better to avail myſelf of the weſtern gale, in order to reach the parallel of Bougainville's Navigators Iſlands, a diſcovery due to the French, where we might hope to procure freſh proviſion, of which we were in the greateſt want.

On the 6th of December, at three in the afternoon,

noon, we got ſight of the moſt eaſterly iſland of that Archipelago; ſtood towards it till eleven in the evening; and then ſtood on and off during the reſt of the night. As I purpoſed anchoring, in caſe I met with a proper place, I paſſed through the channel between the great and the little iſlands that Bougainville left to the ſouth. It is ſcarcely a league wide; but it appeared entirely free from danger. We were in mid-channel at noon, and at a mile's diſtance from the ſhore found the latitude by obſervation to be 14° 7′ ſouth, the ſouthern point of one of the iſlands bearing ſouth 36° weſt. That point is conſequently ſituated in 14° 8′ ſouth latitude.

Though we did not perceive any canoes till we were in the channel, we had ſeen habitations on the windward ſide of the iſland, and a conſiderable group of Indians ſitting in a circle under cocoa-nut trees, and appearing quietly to enjoy the ſight afforded them by our frigates. They did not then launch a ſingle canoe; or did they follow us along ſhore. This iſland, of about two hundred toiſes elevation, is very ſteep, and covered to the top with large trees, among which we diſtinguiſhed a great number of the cocoa-nut kind. The houſes are built about half way down the declivity, a ſituation in which the iſlanders breathe a cooler air than along ſhore. Near them we remarked ſeveral ſpots of cultivated ground, planted probably with ſweet potatoes

potatoes or yams; but, upon the whole, the iſland appeared far from fertile, and in any other part of the South ſea I ſhould have thought it uninhabited. My miſtake would have been the greater, as even two little iſlands, that form the weſtern ſide of the channel through which we paſſed, have their inhabitants. We ſaw five canoes ſet out from them, and join eleven others that came from the eaſtern iſland. After having paddled ſeveral times round the two ſhips with an air of diſtruſt, they at laſt ventured to approach, and make ſome exchanges with us, but of ſo trifling a kind, that we only obtained about twenty cocoa-nuts, and two blue gallinules. Theſe iſlanders, like all thoſe of the South ſea, were diſhoneſt in their dealings; and after receiving the price of their cocoa-nuts beforehand, ſeldom failed to paddle away without fulfilling their part of the agreement. The amount of their theſts was, it is true, of little importance, a few bead necklaces with ſome ſcraps of red cloth, being hardly worth aſking for again. We ſounded ſeveral times in the channel with a line of a hundred fathoms, but got no ground, though at leſs than a mile's diſtance from the ſhore. We continued our courſe in order to double a point, behind which we hoped to meet with ſhelter; but found, that the iſland was not of the breadth indicated by M. de Bougainville's plan. It terminates, on the contrary, in a point, its greateſt diameter being at moſt a league.

league. We found that the eaſt wind raiſed a ſurf upon the coaſt, which is ſurrounded with reefs; and ſaw plainly, that it would be vain to ſeek an anchorage there. We then ſtood out of the channel, with the intention of running along the two iſlands to the weſt, which are both together nearly equal in extent to the more eaſtern one. A canal leſs than a hundred toiſes wide ſeparates them, and at their weſtern extremity is a ſmall iſland, which I ſhould have called a large rock, had it not been covered with trees. Before we doubled the two ſouthern points, it fell dead calm, and we were toſſed about by a heavy ſwell, which made me fearful of running foul of the Aſtrolabe. Luckily ſome little puffs of air ſoon extricated us from that diſagreeable ſituation, which had not permitted us to attend to the harangue of an old Indian, who held a branch of *kava* in his hand, and delivered a diſcourſe of conſiderable length. We knew, by reading a variety of voyages, that it was a ſign of peace; and, while throwing him a few pieces of cloth, anſwered him by the word *tayo*, which, in the language of ſeveral nations inhabiting the iſlands of the South ſea, means *friend*; but we had not as yet had ſufficient practice to underſtand and pronounce diſtinctly the words of the vocabularies that we had extracted from Cook's voyages.

At length, when the breeze reached us, we made ſail, in order to ſtand away from the coaſt, and get out

out of the region of calms. All the canoes then came up alongſide. In general they ſail pretty well, but row very indifferently; and, as they overſet at every moment, would be uſeleſs to any body but ſuch excellent ſwimmers as theſe iſlanders are. *They* are no more ſurpriſed or uneaſy at ſuch an accident, than we are at the fall of a hat. Taking up the canoe on their ſhoulders, they empty the water out of it, and then get in again, with the certainty of having the ſame operation to perform half an hour after, it being almoſt as difficult to preſerve an equilibrium in ſuch tickliſh veſſels as upon the tight rope. Theſe iſlanders are in general tall, their mean height appearing to me to be five feet ſeven or eight inches. The colour of their ſkin nearly reſembles that of the Algerines, or other nations of the coaſt of Barbary: their hair is long, and tied up on the top of their heads: their caſt of countenance far from agreeable. I ſaw no more than two women; and even *their* features did not appear to be more delicately formed. The younger, who might be about eighteen years of age, had a dreadful and diſguſting ulcer upon her leg. Several of the men alſo had large ſores about their perſons, poſſibly a beginning of leproſy; for I remarked two among them whoſe legs, covered with ulcers, and ſwelled to the ſize of their bodies, did not admit of a doubt as to the nature of their diſeaſe. They approached us with fear and without arms, every thing beſpeaking them

them as peaceable as the inhabitants of the Society and Friendly iſlands. At one time we thought they had entirely taken leave of us, and their apparent poverty eaſily reconciled us to their abſence; but the wind having fallen in the afternoon, the ſame canoes, accompanied by ſeveral others, came two leagues into the offing, to traffick with us anew. After quitting us they had gone aſhore, and now returned rather more richly laden than before. We obtained from them at different times ſeveral curious articles of dreſs, five fowls, ten gallinules, a ſmall hog, and the moſt beautiful turtle-dove we had ever ſeen. Its body was white, its head of the fineſt purple, its wings green, and its breaſt checkered with red and black ſpots, like the leaves of the anemony. This charming bird was tame, and ate out of the hand and mouth; but it was not probable that we could convey it to Europe alive. And ſo it proved, its death only permitting us to preſerve its feathers, which ſoon loſt all their ſplendour. As the Aſtrolabe was conſtantly ahead in this day's run, all the canoes began their traffick with M. de Langle, who purchaſed two dogs, which we found excellent eating.

Although the canoes of theſe iſlanders are well conſtructed, and furniſh a good proof of the ſkill with which they work in wood, we could never prevail on them to accept our hatchets, or any other inſtrument of iron. They preferred a few glaſs beads,

beads, that could be of no uſe to them, to all the hardware, and ſtuffs, we offered them; and gave us in return, among other things, a wooden veſſel filled with cocoa-nut oil, exactly of the ſhape of our earthen pots, and ſuch as no European workman would undertake to faſhion by any other mean than a turning lathe. Their ropes are round, and twiſted like our watch chains: their mats are very fine; but their ſtuffs are inferior to thoſe of the Eaſter and Sandwich iſlands. It ſeems alſo, that they are very ſcarce; for all the iſlanders were abſolutely naked, and only ſold us two pieces. As we were ſure of meeting with a much more conſiderable iſland farther weſt, where we flattered ourſelves we ſhould at leaſt find ſhelter, if not a port, we deferred making more extenſive obſervations till after our arrival at that iſland, which, according to M. Bougainville's plan, is only ſeparated from the laſt iſland we had upon our beam at night-fall, by a channel eight leagues wide. I ran only three or four leagues to the weſtward after ſunſet, and paſſed the reſt of the night in ſtanding off and on under eaſy ſail. At break of day I was very much ſurpriſed not to ſee the land to leeward, nor did I get ſight of it till ſix o'clock in the morning, becauſe the channel is infinitely wider than that laid down in the plan that ſerved me as a guide. It is a great pity, that the charts of a voyage, which yields to none but that of captain Cook in accuracy of obſervation, and in

extent and importance of diſcoveries, ſhould not have been drawn up with greater care, and upon a larger ſcale.

We did not find ourſelves oppoſite the north-eaſt point of the iſland of Maouna till five o'clock in the evening. Intending to ſeek an anchorage there, I made a ſignal to the Aſtrolabe to haul her wind, that we might ſtretch backward and forward to windward of the iſland during the night, and have the whole of the next day before us to explore it in every part. Though we were three leagues from the land, two or three canoes came along-ſide the ſame evening, bringing with them hogs and fruit, which they exchanged for beads. Hence we conceived a high opinion of the riches of the iſland.

The next morning, I approached the land, and ſtretched along it, at the diſtance of half a league. It is ſurrounded by a reef of coral, on which the ſea broke with great fury; but that reef was almoſt cloſe in ſhore, and in the creeks formed by ſeveral ſmall projections of the coaſt there was room for canoes, and probably for our barges and long-boats to enter. We diſcovered a number of villages at the bottom of each creek, whence came innumerable canoes, laden with hogs, cocoa-nuts, and other fruit, which we purchaſed with glaſs ware. Such great abundance increaſed my deſire to anchor, eſpecially as we ſaw water falling in caſcades from the tops of the mountains to the bottoms of the

villages. So many advantages made me little ſcrupulous as to an anchorage. We hauled cloſer in ſhore, and having found at four o'clock, at a mile from land, and in thirty fathom water, a bank compoſed of rotten ſhells and a very little coral, we let go our anchors; but we were toſt about by a very heavy ſwell that ſet in ſhore, although the wind blew from the land. We immediately hoiſted out our boats; and the ſame day, M. de Langle and ſeveral officers, with three boats manned and armed by the two frigates, landed at a village, where they were received by the inhabitants in the moſt friendly manner. As night was coming on when they went aſhore, the Indians made a great fire, to light the place of debarkation; and brought down birds, hogs, and fruit. After an hour's ſtay, our boats returned on board. Every one ſeemed ſatisfied with this reception, our only concern being to ſee our frigates anchored in ſo bad a roadſtead, where they rolled as if in the open ſea. Though we were ſheltered from the eaſterly winds, the calm thence reſulting ſufficed to expoſe us to the greateſt danger, in caſe our cables ſhould part, while the impoſſibility of getting out left us no reſource againſt a ſtrong breeze from the north-weſt. We knew by the relations of preceding navigators, that the trade winds are very uncertain in theſe ſeas; and that it is almoſt as eaſy to ſail eaſt as weſt, a circumſtance which favours the natives in their long excurſions to leeward.

leeward. We had ourſelves experienced this inconſtancy of the wind, the weſtern breeze having only left us in the latitude of 12°. Theſe reflections made me paſs a very bad night, eſpecially as a ſtorm was gathering to the northward, whence the wind was blowing freſh, but fortunately, however, the land breeze prevailed.

CHAPTER XXIV.

Manners, cuſtoms, arts, and uſages of the iſlanders of Maouna.—Contraſt of that beautiful and fertile country, with the ferocity of its inhabitants.—The ſwell becomes very heavy, and we are obliged to get under way.—M. de Langle wiſhing to water his ſhip, goes on ſhore with four boats manned and armed.—He and eleven perſons of the two crews are murdered.—Circumſtantial account of that event.

(DECEMBER 1787.)

THE next morning, as the riſing of the ſun announced a fair day, I reſolved to avail myſelf of it, in order to reconnoitre the country, obſerve the inhabitants at their own homes, fill water, and then get under way, prudence forbidding me to paſs a ſecond night at that anchorage, which M. de Langle had alſo found too dangerous for a longer ſtay. It was therefore agreed upon, that we ſhould ſail in the afternoon, and that the morning, which was very fine, ſhould be in part employed in trading for hogs and fruit. As early as the dawn of day, the iſlanders had ſurrounded the two frigates with two hundred canoes full of different kinds of proviſion, which they would only exchange for beads—in their eſtimation diamonds of the firſt water. Our axes,

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our cloth, and all our other articles of commerce, they diſdained. While a part of the crew was occupied in keeping them in order, and in trading with them, the reſt filled the boats with empty caſks, in order to go aſhore to water. Our two boats, armed, and commanded by Meſſrs. de Clonard and Colinet, and thoſe of the Aſtrolabe commanded by Meſſrs. de Monti and Bellegarde, ſet off with that intention at five o'clock in the morning, for a bay about a league diſtant, and a little way to windward; a convenient ſituation, as it enabled them, when loaded with water, to come back with the wind large. I followed cloſe after Meſſrs. Clonard and Monti in my pinnace (*biſcayenne*), and landed at the ſame time as they did. Unfortunately M. de Langle reſolved to make an excurſion in his jolly-boat to another creek, about a league diſtant from our watering place. This excurſion, whence he returned delighted with the beauty of the village he had viſited, was, as will be ſeen hereafter, the cauſe of our misfortune. The creek, towards which the long-boats ſteered, was large and commodious; both they and the other boats remained afloat at low water, within half a piſtol ſhot of the beach; and the water was both fine, and eaſily procured. Meſſrs. de Clonard and de Monti preſerved the beſt order poſſible. A line of ſoldiers was poſted between the beach and the Indians, who amounted to about two hundred, including a great many women and children. We

prevailed upon them all to ſit down under cocoa trees, that were not more than eight toiſes diſtant from our boats. Each of them had by him fowls, hogs, parrots, pigeons, or fruit, and all wiſhed to ſell them at once, which occaſioned ſome confuſion.

The women, ſome of whom were very pretty, offered their favours, as well as their fowls and fruit, to all thoſe who had beads to give them; and ſoon tried to paſs through the line of ſoldiers, who oppoſed but a feeble reſiſtance to their attempts. Europeans who have made a voyage round the world, eſpecially Frenchmen, have no arms to ward off ſimilar attacks. Accordingly the fair ſavages found little difficulty in breaking the ranks; the men then approached; and the confuſion was growing general; when Indians, whom we took for chiefs, made their appearance with ſticks in their hands, and reſtored order, every one returning to his poſt, and our traffick beginning anew, to the great ſatisfaction of both buyers and ſellers. In the mean time a ſcene had paſſed in our long-boat, which was a real act of hoſtility, and which I was deſirous of repreſſing without effuſion of blood. An Indian had gotten upon the ſtern of the boat, had laid hold of a mallet, and had aimed ſeveral blows at the arms and back of one of our ſailors. I ordered four of the ſtrongeſt ſeamen to lay hold of him, and to throw him into the ſea, which was immediately done.

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The other iſlanders appearing to diſapprove of the conduct of their countryman, this ſquabble was attended with no bad conſequences. Perhaps an example of ſeverity would have been neceſſary to awe theſe people ſtill more, by letting them know how much the force of our fire-arms was beyond their individual ſtrength; for their height of about five feet ten inches, and their muſcular limbs of coloſſal proportions, gave them an idea of their own ſuperiority, which rendered us by no means formidable in their eyes; but having very little time to remain among them, I thought it right not to inflict a ſeverer penalty upon him who had offended us; and, by way of giving them ſome idea of our power, contented myſelf with buying three pigeons, which were thrown up into the air, and ſhot in the preſence of the whole aſſembly.

While all this was paſſing with the greateſt tranquillity, and our caſks were filling with water, I thought I might venture to the diſtance of two hundred yards to viſit a charming village, ſituated in the midſt of a wood, or rather of an orchard, all the trees of which were loaded with fruit. The houſes were placed upon the circumference of a circle, of about a hundred and fifty toiſes in diameter, the interior forming a vaſt open ſpace, covered with the moſt beautiful verdure, and ſhaded by trees, which kept the air delightfully cool. Women, children, and old men, accompanied me, and invited me into their houſes. They ſpread the

fineſt and freſheſt mats upon a floor formed of little choſen pebbles, and raiſed about two feet above the ground, in order to guard againſt the humidity. I went into the handſomeſt of theſe huts, which probably belonged to a chief; and great was my ſurpriſe, to ſee a large cabinet of lattice-work, as well executed as any of thoſe in the environs of Paris. The beſt architect could not have given a more elegant curve to the extremities of the ellipſis that terminated the building; while a row of pillars at five feet diſtance from each other formed a complete colonnade round the whole. The pillars were made of trunks of trees very neatly wrought, and between them were fine mats laid over one another with great art, like the ſcales of a fiſh, and drawing up and down with cords, like our Venetian blinds. The reſt of the houſe was covered with leaves of the cocoa-palm.

This charming country combines the advantages of a ſoil fruitful without culture, and of a climate which renders clothing unneceſſary. The trees that produce the bread-fruit, the cocoa-nut, the banana, the guava, and the orange, hold out to theſe fortunate people an abundance of wholeſome food; while the fowls, hogs, and dogs, which live upon the ſurplus of theſe fruits, afford them an agreeable variety of viands. They were ſo rich, and had ſo few wants, that they diſdained our inſtruments of iron and our cloth, and aſked only for beads.

beads. Abounding in real bleſſings, they were deſirous of obtaining ſuperfluities alone.

They had ſold at our market more than two hundred wood-pigeons, which would only eat out of the hand; and a number of the moſt beautiful turtle-doves and perroquets, equally tame. What cold imagination could ſeparate the idea of happineſs from ſo enchanting a place? Theſe iſlanders, ſaid we a hundred times over, are, without doubt, the happieſt beings on earth. Surrounded by their wives and children, they paſs their peaceful days in innocence and repoſe: no care diſturbs them but that of bringing up their birds, and, like the firſt man, of gathering, without labour, the fruit that grows over their heads. We were deceived. This delightful country was not the abode of innocence. We perceived, indeed, no arms; but the bodies of the Indians, covered over with ſcars, proved that they were often at war, or elſe quarrelling among themſelves; while their features announced a ferocity, that was not perceptible in the countenances of the women. Nature had, no doubt, ſtamped this character on their faces, by way of ſhewing, that the half-ſavage, living in a ſtate of anarchy, is a more miſchievous being than the moſt ferocious of the brute creation.

This firſt viſit paſſed without any diſpute capable of leading to diſagreeable conſequences. I learned, however, that there had been quarrels between individuals,

duals, but that they had been very prudently appeaſed. Stones had been thrown at M. Rollin, our ſurgeon-major; and an Indian, while pretending to admire M. de Monernon's ſabre, had attempted to ſnatch it from him; but finding the ſcabbard alone left in his hand, he had run off in a great fright at the ſight of the naked weapon. I perceived, that in general theſe iſlanders were very turbulent, and in bad ſubjection to their chiefs; but as I intended to leave them in the afternoon, I congratulated myſelf on not having attached any importance to the little inſtances of moleſtation we had met with. Towards noon I returned to the ſhip in my barge, and was very cloſely followed by the long-boats. I found it difficult to get alongſide, both frigates being ſurrounded by canoes, and our market being as much crowded as ever. When I went aſhore I had given the command of the Bouſſole to M. Boutin, and had left him at liberty to eſtabliſh ſuch police as he might think proper, either by permitting a few of the iſlanders to come on board, or by poſitively oppoſing their entry, according to the turn circumſtances might take. Upon the quarter-deck I found ſeven or eight Indians, the oldeſt of whom was preſented to me as a chief. M. Boutin told me, that he could not have prevented their coming on board unleſs by firing upon them; that when they compared their bodily ſtrength to ours they laughed at our threats, and made

made a jeſt of our ſentinels; and that my well-known principles of moderation had made him unwilling to recur to violent meaſures, which, however, were the only ones capable of keeping them in awe. He added, that, ſince the chief was preſent, thoſe who had come on board before were grown more quiet and leſs inſolent.

I made the chief a number of preſents, and ſhewed him every mark of kindneſs; but wiſhing at the ſame time to inſpire him with a high opinion of our power, I ordered ſeveral experiments on the uſe of our weapons to be made in his preſence. But their effect impreſſed him ſo little, that he ſeemed to think them only fit for the deſtruction of birds.

Our boats now arrived loaded with water, and I made every preparation to get under way, and profit by a light land-breeze which gave us hopes of having time to make a little offing. M. de Langle returned at the ſame moment from his excurſion, and related, that he had landed in a noble harbour for boats, ſituated at the foot of a delightful village, and near a caſcade of the moſt pellucid water. On going on board his own ſhip, he had given orders to get under way, of which he felt the neceſſity as well as myſelf; but he inſiſted in the moſt urgent manner upon our remaining, ſtanding off and on, at a league from the coaſt, and upon our getting on board a few long-boat loads

loads of water, before we ſhould entirely abandon the iſland. In vain did I repreſent to him that we were not in the ſmalleſt want of it.—He had adopted captain Cook's ſyſtem, and thought water recently ſhipped a thouſand times preferable to that which we had in the hold; and as a few individuals of his crew had ſlight ſymptoms of ſcurvy, he thought, with reaſon, that we owed them every relief in our power. Beſides, no iſland could be compared with this for abundance of proviſion: the two frigates had already taken on board more than five hundred hogs, a great number of fowls and pigeons, and a great quantity of fruit; and yet all theſe valuable acquiſitions had only coſt us a few glaſs beads.

I felt the truth of theſe reflections; but a ſecret preſentiment prevented my immediate acquieſcence. I told him, that I thought the iſlanders too turbulent for us to truſt our boats on ſhore, when they could not be ſupported by the fire of the ſhips; and obſerved to him that our moderation had only ſerved to embolden men, who calculated upon nothing but our perſonal ſtrength, which was certainly very much inferior to theirs. Nothing, however, could ſhake M. de Langle's reſolution. He told me, that my reſiſtance would make me reſponſible for the progreſs of the ſcurvy, which already began to ſhow itſelf in an alarming manner, and that, beſides, the harbour he was ſpeaking of was infinitely more commodious

than

than that of our watering place. Finally, he begged me to permit him to put himſelf at the head of the firſt party, aſſuring me, that in three hours he would return on board, with all the boats full of water. M. de Langle was a man of ſo ſound a judgment, and ſo much capacity, that theſe conſiderations, more than any other motive, determined me to give my conſent, or rather made my will give way to his. I promiſed him then, that we would ſtand off and on all night, and that in the morning we would diſpatch our two long boats, and two barges, armed in any way he ſhould think proper, and that the whole ſhould be under his command. The event fully juſtified our opinion, that it was time to get under way. On heaving up the anchor we found one ſtrand of the cable cut by the coral; and in two hours more the whole cable would have been cut through. As we were not under ſail till four in the afternoon, which was too late an hour to think of ſending our boats on ſhore, we poſtponed their departure till next day. The night was ſtormy, and the wind, which ſhifted every moment, made me come to a reſolution of ſtanding off about three leagues from the coaſt. At break of day a flat calm did not permit me to approach it; and it was not till nine o'clock, that a ſmall breeze ſprang up from the north-weſt, and enabled me to near the iſland, from which at eleven o'clock we were ſcarcely a league diſtant. I then diſpatched my long-boat and barge,

commanded

commanded by Meſſieurs Boutin and Mouton, on board the Aſtrolabe, to take M. de Langle's orders. All thoſe who had any ſlight ſymptoms of the ſcurvy were put into them, as well as ſix ſoldiers armed, with the maſter at arms at their head. The two boats contained in all twenty-eight men, and carried twenty empty caſks, which were meant to be filled at the watering place. Meſſieurs de Lamanon and Colinet, though ſick, were of the number of thoſe that ſet off from the Bouſſole. M. de Langle, on the other hand, ſet off in his barge, accompanied by M. Vaujuas, a convaleſcent. M. le Gobien, a midſhipman, commanded the long-boat, and Meſſrs. de la Martiniere, Lavaux, and father Receveur, made part of the thirty-three perſons ſent by the Aſtrolabe. Among the ſixty-one individuals, of which the whole party conſiſted, were the choiceſt men of both crews. M. de Langle armed all his people with muſkets and cutlaſſes; and ordered ſix ſwivels to be mounted upon the long-boats. I had left him perfectly at liberty to provide every thing he might think conducive to his ſafety. The certitude we were in of having had no diſpute with the natives, of which they could retain any reſentment; the immenſe number of canoes that crowded round us in the offing; the air of gaiety and confidence that prevailed in our markets; every thing, in ſhort, tended to increaſe his ſecurity, and I confeſs that mine could not well be greater than it was. But it was

contrary

contrary to my principles to ſend boats on ſhore, without the greateſt neceſſity, eſpecially in the midſt of an immenſe number of people, when they could not be ſupported or even perceived by the ſhips.

The boats put off from the Aſtrolabe at half paſt twelve, and in three quarters of an hour arrived at the watering place. What was the ſurpriſe of all the officers, and of M. de Langle himſelf, to find, inſtead of a vaſt and commodious bay, a creek full of coral, through which there was no paſſage but a winding channel leſs than twenty-five feet wide, and on which the ſwell broke as upon a bar! When within, they had only three feet water; the long-boats grounded, and the barges only continued afloat becauſe they were hauled to the entrance of the channel at a conſiderable diſtance from the beach. Unfortunately M. de Langle had examined the bay at high-water only, never imagining that the tide at theſe iſlands roſe five or ſix feet. He could not believe his eyes. The firſt movement of his mind was to quit the creek, and repair to that where we had already filled water, which combined every advantage. But the air of tranquillity and good humour of the crowds waiting for him upon the beach with an immenſe quantity of fruit and hogs; and the women and children he ſaw among the Indians, who take care to ſend them out of the way when they have hoſtile intentions; all theſe circumſtances concurred to baniſh his firſt prudent

idea, which an inconceivable fatality forbad him to purſue. He put the caſks on ſhore from the four boats with the greateſt tranquillity; while his ſoldiers preſerved the beſt order poſſible upon the beach, being drawn up in two lines with a ſpace left open for the working party. But this calm was not of long duration. Several of the canoes, which had parted with their proviſion to the ſhips, had returned to the iſland, and had all landed in the bay of the watering place, ſo that in a ſhort time it was entirely full. Inſtead of two hundred natives, including women and children, whom M. de Langle had found there on his arrival at half paſt one, there were at three o'clock from a thouſand to twelve hundred. The number of canoes, which had traded with us in the morning, was ſo conſiderable, that we ſcarcely perceived its diminution in the afternoon; and I gave myſelf credit for keeping them employed on board, in hopes that our boats would be ſo much the quieter on ſhore. Great was my miſtake! M. de Langle's ſituation became every moment more and more embarraſſing. He found means however, with the aſſiſtance of Meſſieurs de Vaujuas, Boutin, Colinet, and Gobien, to ſhip his water; but the bay was almoſt dry, and he could not hope to get the long-boats off before four in the afternoon. He ſtepped into them however, as well as his detachment, and took poſt in the bow with his muſket and muſketeers, forbidding any

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one to fire before he ſhould give the word. He began however to be ſenſible that he ſhould ſoon be forced to do ſo. Already the ſtones began to fly; and the Indians, who were only up to their knees in water, ſurrounded the long-boats at leſs than ſix feet diſtance, the ſoldiers, who were embarked, making vain efforts to keep them off. If the fear of commencing hoſtilities, and of being accuſed of barbarity, had not withheld M. de Langle, he would doubtleſs have given orders to fire a volley of muſketry and ſwivels, which would not have failed to put the multitude to flight; but he flattered himſelf that he ſhould be able to keep them in check without effuſion of blood; and fell, the victim of his humanity. In a very ſhort time a ſhower of ſtones, thrown from a ſmall diſtance with as much force as from a ſling, ſtruck almoſt every one of thoſe who were in the long-boat. M. de Langle had only time to fire his two ſhot, when he was knocked down, and unfortunately fell over the larboard ſide of the boat, where more than two hundred Indians immediately maſſacred him with clubs and ſtones. When he was dead they tied him by the arm to one of the row-locks of the long-boat, in order, no doubt, to make ſurer of ſpoil. The long-boat of the Bouſſole, commanded by M. Boutin, was aground at two toiſes from that of the Aſtrolabe, leaving in a parallel line between them a little channel unoccupied by the Indians. It was by that channel that all the

wounded, who had the good fortune not to fall on the other ſide, ſaved themſelves by ſwimming. They got on board the barges, which, having moſt fortunately been kept afloat, were the means of ſaving forty-nine perſons out of the ſixty-one of which the party conſiſted. M. Boutin had imitated all the movements, and followed every ſtep of M. de Langle: his water-caſks, his detachment, all his people, had been embarked at the ſame time, and placed in the ſame manner, and he occupied the ſame poſt in the bow of the boat. Although afraid of the bad conſequences of M. de Langle's moderation, he did not take upon him to order his detachment to fire till after M. de Langle had begun. It may be ſuppoſed that, at the diſtance of four or five yards, every ſhot muſt have killed an Indian, but there was no time to reload. M. Boutin was likewiſe knocked down by a ſtone, and by good fortune fell between the two long-boats, on board of which not a ſingle man remained in leſs than five minutes. Thoſe who ſaved themſelves by ſwimming to the two barges, had received ſeveral wounds each, almoſt all on the head: thoſe, on the contrary, who were unfortunate enough to fall over on the ſide of the Indians were inſtantly diſpatched by their clubs. But the rage for plunder was ſuch, that the iſlanders haſtened to get poſſeſſion of the long-boats, and jumped on board to the number of three or four hundred, tearing up the ſeats, and breaking the inſide to pieces, in order to

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ſeek for our ſuppoſed riches. While this was going on they no longer paid much attention to the barges; which gave time to Meſſieurs de Vaujuas and Mouton to ſave the reſt of our people, and to aſcertain that nobody remained in the hands of the Indians, but thoſe who had been maſſacred and killed in the water by the blows of their *patows*.

The crews of the barges, who till then had fired upon the iſlanders, and killed a good many, now began to throw their water-caſks overboard, in order that every body might find room. They had, beſides, almoſt exhauſted their ammunition; and their retreat was become a matter of ſome difficulty, with ſuch a number of perſons dangerouſly wounded, who lay ſtretched out upon the thwarts, and hindered the working of the oars. To the prudence of M. Vaujuas, to the good order which he eſtabliſhed, and to the ſtrict diſcipline kept up by M. Mouton, who commanded the Bouſſole's barge, we were indebted for the preſervation of the forty-nine perſons of both crews who eſcaped. M. Boutin, who had five wounds on the head, and one in the breaſt, was kept above water by the cockſwain of the long-boat, who was himſelf wounded. M. Colinet was found lying in a ſtate of inſenſibility upon the grapnel-rope of the barge, having an arm fractured, a finger broken, and two wounds on the head. M. Lavaux, ſurgeon major of the Aſtrolabe, was ſo

grievouſly wounded, that he was obliged to ſuffer the operation of the trepan. He had, however, ſwum to the barges, as well as M. de la Martinière, and father Receveur, who had received a violent contuſion on the eye. M. de Lamanon and M. de Langle were maſſacred with unexampled barbarity, with Talin, maſter at arms of the Bouſſole, and nine other perſons belonging to the two crews. The ſavage Indians, after having killed them, ſtill continued to wreak their fury upon the inanimate bodies with their clubs. M. le Gobien, who commanded the Aſtrolabe's long-boat under the orders of M. de Langle, did not abandon his poſt, till he found himſelf entirely alone. After having exhauſted his ammunition, he leaped into the water, on the ſide of the little channel left between the two boats, which, as I have ſaid above, was unoccupied by the Indians; and notwithſtanding his wounds, found means to ſave himſelf on board one of the barges. That of the Aſtrolabe was ſo deeply laden, that it grounded. This event inſpired the natives with the idea of diſturbing the wounded in their retreat. They came down accordingly in great numbers towards the reefs at the entrance, within ten feet of which the barges were neceſſarily obliged to paſs. The little ammunition that remained was exhauſted upon the infuriated crowd; and at length the boats extricated themſelves from a place, more dreadful

dreadful on account of its deceitful ſituation and the cruelty of its inhabitants, than the dens of wild beaſts.

At five o'clock they came on board, and informed us of this diſaſtrous event. We had round us at that moment not leſs than a hundred canoes, in which the natives were ſelling their proviſions with a ſecurity which ſufficiently proved their innocence. But they were the brothers, the children, the countrymen, of the barbarous aſſaſſins; and I confeſs that it was neceſſary to call up all my reaſon to repreſs the anger that tranſported me, and to hinder the crew from putting them to death. The ſoldiers were already caſting looſe the guns, and laying hold of their muſkets. I ſtopped theſe movements, which were, however, pardonable enough; and ordered a ſingle gun loaded with powder to be fired, as a warning to the canoes to depart. A ſmall boat that came from the coaſt, informed them, without doubt, of what had juſt paſſed; for in leſs than an hour not a canoe remained in ſight. An Indian who was upon the quarter-deck when our barge came on board, was arreſted by my orders, and put in irons. The next day, having approached the coaſt, I permitted him to jump overboard, the confidence with which he had remained on board being an unequivocal proof of his innocence.

My firſt project was to ſend another party on

ſhore to revenge the death of our unfortunate companions, and to recover the wrecks of our boats. With that intention I ſtood to the weſtward in ſearch of an anchorage; but I found nothing but the ſame bottom of coral, with a ſwell that ſet in ſhore, and broke upon the reefs. The creek in which the maſſacre took place, was beſides very deeply indented in the ſide of the iſland, and it did not appear poſſible to approach it within cannon-ſhot. M. Boutin, whoſe wound confined him to his bed, but who retained the full command of his mind, repreſented to me alſo, that the ſituation of the bay was ſuch, that if our boats ſhould unfortunately run aground (a thing very poſſible), not a ſingle man would return alive; for the trees, which are cloſe to the ſea-ſide, while protecting the Indians againſt our muſketry, would leave the men whom we might debark expoſed to a ſhower of ſtones, ſo much the more difficult to avoid, as being thrown with uncommon force and addreſs, they produced almoſt the ſame effect as our bullets, and had the advantage of ſucceeding one another with greater rapidity. M. de Vaujuas was of the ſame opinion. I would not, however, accede to it, till I had fully aſcertained the impoſſibility of anchoring within gun-ſhot of the village. I paſſed two days in working to windward oppoſite the bay; and could perceive the wrecks of our long-boats aground upon the ſand, and round them an immenſe

number of Indians. What will no doubt appear incredible is, that during this time five or ſix canoes came off from the ſhore with hogs, pigeons, and cocoa-nuts, to offer us in exchange. I was obliged every moment to curb my anger, leſt I ſhould give orders to ſend them to the bottom. The Indians, not knowing that we had any arms of longer range than our muſkets, remained without the leaſt apprehenſion at fifty toiſes diſtance from the ſhips, and offered us their proviſions with great apparent ſecurity. Our geſtures gave them no encouragement to approach, and in this way they paſſed a whole hour in the afternoon of the 12th of December. Their offers of barter were ſucceeded by raillery, and ere long I perceived ſeveral other canoes quit the beach in order to join them. As they had no ſuſpicion of the range of our guns, and as every thing indicated that I ſhould ſoon be forced to depart from my principles of moderation, I ordered a ſhot to be fired into the midſt of them. My orders were executed with the utmoſt preciſion. The ball daſhed the water into the canoes, and they inſtantly made the beſt of their way to the ſhore, being joined in their flight by thoſe that had left the beach a little while before.

It was with difficulty that I could tear myſelf from this fatal ſpot, and leave the dead bodies of our murdered companions. In M. de Langle I loſt an old friend, a man of ſenſe, judgment, and in-

formation, and one of the beſt officers in the French navy. His humanity was the cauſe of his death. Had he allowed himſelf to fire upon the firſt Indians who came into the water in order to ſurround his boats, he would have ſaved his own life, and thoſe of M. de Lamanon and ten other victims of Indian ferocity. There were beſides twenty perſons belonging to the two frigates grievouſly wounded; this event deprived us for the moment of thirty-two hands, and two long boats, the only ones we had capable of containing a ſufficient number of armed men to attempt a deſcent. Theſe conſiderations were the guide of my future conduct. The ſmalleſt check would have forced me to burn one of the two frigates to man the other. I had indeed the frame of a long-boat on board; but I could not put it together without going into port. If, to ſatisfy my revenge, I had only wiſhed for the maſſacre of a few Indians, I had an opportunity of deſtroying, ſinking, blowing to pieces, a hundred canoes, containing more than five hundred perſons; but I was afraid of being miſtaken in the choice of my victims; and the voice of conſcience ſaved their lives. Thoſe whom this narrative may remind of the cataſtrophe of captain Cooke ſhould bear in mind, that his ſhips were anchored in the bay of Karakakooa; that their guns rendered them maſters of the beach; and that they could give the law to the Indians by threatening to deſtroy the canoes

that remained at the water-ſide, as well as the villages that ſkirted the coaſt. We, on the contrary, were at ſea, out of gun-ſhot, and obliged to keep off the coaſt, where a calm might have been attended with the greateſt danger. A heavy ſwell drifted us conſtantly towards the reefs, outſide of which we might, without doubt, have anchored with iron chains; but ſtill we ſhould have been out of gun-ſhot of the village, beſides that the ſwell was ſufficient to cut our cable at the hawſe-holes, and thereby to expoſe us to the moſt imminent hazard. I exhauſted every calculation of probability before I left this fatal iſland; being at length convinced that anchoring was impracticable, and that a deſcent unſupported by the frigates would be raſhneſs in the extreme. Even ſucceſs would have been uſeleſs; ſince it was certain that not a ſingle man remained alive in the hands of the Indians, and that our boats, which we had the means of replacing, were broken to pieces and aground. I ſteered in conſequence, on the 14th, for a third iſland, which was in ſight, bearing W. by N. and which M. de Bougainville had only ſeen from the maſt-head, being driven off by bad weather. This iſland is ſeparated from that of Maoúna by a channel only nine leagues wide. The Indians had given us the names of ten iſlands that compoſed their archipelago, and had rudely traced their ſituation upon a ſheet of paper. Although no great dependence is

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to be placed upon the plan they drew, yet to me it appears probable that the people of theſe different iſlands are in a kind of confederacy with one another, and that they keep up a frequent intercourſe. The farther diſcoveries we have made leave no doubt of this archipelago being more conſiderable than the Society iſlands, while it is equally well-peopled, and abounds in proviſion no leſs than they. It is even probable, that very good harbours might be found there; but having no boat, and knowing the exaſperated ſtate of mind of my crew, I reſolved not to anchor till I came to Botany Bay, in New Holland, where I purpoſed putting together the frame of the new long-boat that I had on board. It was my intention, nevertheleſs, for the ſake of advancing the ſcience of geography, to explore the different iſlands I might meet with, and to determine their latitude and longitude with preciſion. I hoped alſo to be able to traffic with the inhabitants by lying to at a ſmall diſtance from the coaſt. I willingly abandon to others the care of writing the unintereſting hiſtory of ſuch barbarous nations. A ſtay of twenty-four hours, and the relation of our misfortunes, ſuffice to ſhow their atrocious manners, and their arts, as well as the productions of one of the fineſt countries of the univerſe.

Before I continue the account of our voyage among the iſlands of this archipelago, I think it

proper

proper to give the narrative of M. de Vaujuas, who commanded during the retreat from the bay of Maouna. Although he only went aſhore as a convaleſcent, and was not upon duty, the urgency of circumſtances reſtored to him his ſtrength, and he did not leave the bay, till he was well aſſured that not a ſingle Frenchman remained alive in the hands of the natives.

Narrative of M. de Vaujuas.

"Tueſday, December 11th, at eleven o'clock in the morning, M. de la Pérouſe ſent his long boat, and his barge, laden with water-caſks, with a detachment of ſoldiers under arms, to join a party under the command of M. de Langle. M. Boutin had already received inſtructions concerning the means of preſerving order, and of providing for our ſafety, when the boats ſhould go aſhore. At the ſame hour our captain alſo hoiſted out his boats, and in like manner had water-caſks and arms put into them. At half paſt twelve, the ſhips being three quarters of a league from land, with the larboard tacks on board, the four boats ſet off in order to fill water in a creek, that had been examined by M. de Langle. This watering place was to leeward of the one whither we had already been, and was thought preferable to it by M. de Langle, becauſe it appeared leſs inhabited, and equally commodious; but the firſt had the advantage of an eaſier

eaſier entrance, and of a ſufficient depth of water for the boats to be in no danger of getting aground.

" M. de Langle propoſed to me, although I was ſtill in a weak ſtate, to accompany him in his excurſion, by way of taking an airing on ſhore. He took the command of the barge himſelf, and gave that of the long boat to M. le Gobien. M. Boutin commanded the Bouſſole's long-boat, and M. Mouton the barge. M. Colinet, and Father Receveur, who were both ſick, with Meſſieurs de Lamanon, la Martiniere, and Lavaux, accompanied us, as well as a number of other perſons belonging to the two frigates, ſo that we made up a detachment of ſixty-one perſons, the crews of the two barges included.

" While on our way we ſaw with concern, that many of the canoes that were alongſide of the ſhip followed us, and were coming to the ſame creek. We ſaw alſo along the rocks, that ſeparated it from the neighbouring bays, many of the natives repairing thither from the other villages. Upon our arrival at the reef, which forms the creek of the watering place, and only leaves a narrow and ſhallow paſſage for boats, we perceived that it was low water, and that the long-boats could not go in without getting aground: they touched accordingly at half a muſket ſhot from the beach, which we could only approach by puſhing them on with our

oars.

oars. This bay had appeared to the captain in a more favourable point of view, becauſe, at the time he examined it, the tide was not ſo low.

" Upon our arrival, the ſavages, who lined the coaſt, to the number of ſeven or eight hundred, threw into the ſea, as a token of peace, ſeveral branches of the tree from which the iſlanders of the South Sea draw their intoxicating beverage. When we landed, M. de Langle gave orders, that each boat ſhould be guarded by a ſoldier under arms, and by a ſailor, and that the crews of the long-boats, while filling the caſks, ſhould be under the protection of a double line of ſoldiers extending from the watering place to the boats. As faſt as the caſks were filled, they were put quietly on board, the natives ſuffering themſelves to be kept in tolerable order by the armed ſoldiers. Among them was a conſiderable number of women, and very young girls, who offered their favours to us in the moſt indecent manner, and whoſe advances were not univerſally rejected. The children we ſaw there were few.

" Towards the end of our labour, the number of natives increaſed, and became more and more troubleſome. This circumſtance induced M. de Langle to abandon his original intention of trafficking for a few proviſions; and he gave orders to re-embark without delay: but in the mean time, and this, I think, was the firſt cauſe of our misfortune,

tune, he made a preſent of a few beads to a ſort of chiefs, who had helped to keep off the inhabitants. We were, however, certain, that this police was a mere mockery, and that, if theſe pretended chiefs had really any authority, it extended to a very ſmall number of individuals. The captain's preſents, diſtributed to five or ſix perſons, excited the diſcontent of all the reſt. From that moment a general clamour aroſe, and we were no longer able to keep them quiet. They ſuffered us, however, to get into our boats; but a part of them ſtepped into the water in purſuit of us, while the others picked up ſtones upon the beach.

" As the long-boats were aground at a little diſtance from the ſtrand, we were obliged in our way to them to paſs through the water up to our waiſts; and in ſo doing ſeveral of the ſoldiers wet their arms. It was in this critical ſituation that the horrible ſcene began which I am about to narrate. Scarcely were we in the long-boats, when M. de Langle gave orders to ſhove them off, and to weigh the grapnel; but this ſeveral of the moſt robuſt iſlanders oppoſed by laying hold of the rope. The captain, witneſs of their reſiſtance, ſeeing the tumult increaſe, and perceiving the ſtones reach him, tried to intimidate the ſavages by firing a muſket in the air; but, ſo far from being frightened, they made it the ſignal of a general attack. Immediately a ſhower of ſtones, hurled with equal force and celerity,

celerity, came pouring upon us; the fight began on both ſides, and ſoon became general. Thoſe whoſe muſkets were in a ſerviceable ſtate brought ſeveral of the infuriated Indians to the ground; but the others were by no means diſmayed, and ſeemed to combat with redoubled vigour. A part of them came cloſe up to the long-boats, while the reſt, to the number of ſix or ſeven hundred, continued to ſtone us in the moſt dreadful and murderous manner.

"Upon the firſt act of hoſtility I threw myſelf into the water, in order to ſwim to the Aſtrolabe's barge, which was deſtitute of officers. The exigency of the caſe gave me ſtrength ſufficient for the ſmall diſtance I had to go; and, notwithſtanding my weakneſs, and my being ſtruck on the way by ſeveral ſtones, I got into the boat without aſſiſtance. I ſaw with deſpair that there was ſcarcely a muſket that was not wet, and that nothing remained to be done but to get her afloat without the reef as ſoon as poſſible. In the mean time the combat continued; the enormous ſtones hurled by the ſavages maimed one or other of our people at every moment; and whenever a wounded man fell into the water on the ſide of the ſavages, he was immediately diſpatched with clubs and paddles.

"M. de Langle was the firſt victim of the ferocity of theſe barbarians, who had received nothing but favours at his hand. At the very beginning of the

the attack, he was beaten down from the bow of the long-boat, on which he was ſtanding, and fell into the ſea, with the maſter at arms, and the carpenter, who were by his ſide. The fury with which the iſlanders fell upon the captain ſaved the two latter, who found means to get on board the barge. Thoſe who were in the long-boats ſoon ſhared the fate of our unfortunate commander, except a few who got away to the reef, and ſwam thence towards the barges. In leſs than four minutes the iſlanders made themſelves maſters of the two boats, and I beheld with grief and rage the maſſacre of our unfortunate companions, without being able to afford them the ſmalleſt aſſiſtance. The Aſtrolabe's barge was ſtill within the reef, and I expected every moment to ſee it involved in the misfortune of the long-boats; but it was ſaved by the avidity of the iſlanders, the greater part of whom ruſhed into the latter, while the reſt contented themſelves with throwing ſtones. A few, however, came down, and waited for us in the channel, and upon the reefs. Although the ſwell was heavy, and the wind right on end, we found means, notwithſtanding their ſtones, and the dangerous wounds by which many of us were diſabled, to extricate ourſelves from this fatal place, and to join the Bouſſole's barge without, commanded by M. Mouton, who, by throwing his water-caſks into the ſea, had lightened her, and made room for all thoſe who ſwam on board. I

had

had taken into that of the Aſtrolabe Meſſieurs Boutin and Colinet, as well as ſeveral other perſons. Thoſe who had eſcaped to the barges were all either more or leſs wounded. The boats were therefore defenceleſs, and it was impoſſible to think of returning to a bay whence our eſcape had been moſt fortunate, in order to make head againſt a thouſand enraged barbarians. It would have been expoſing ourſelves, to no purpoſe, to certain death.

" We ſteered our courſe then towards the two frigates, which at three o'clock, the moment of the maſſacre, had made a tack off ſhore. They did not ſo much as ſuſpect that we were in the ſmalleſt danger, and the breeze being freſh, were a long way to windward; an unfortunate circumſtance for us, eſpecially for thoſe whoſe wounds required ſpeedy dreſſing. At four o'clock they tacked again, and ſtood in for the land. As ſoon as we were without the reefs, I ſet the ſails, and hauled cloſe to the wind, in order to get clear of the coaſt, throwing overboard every thing likely to impede the ſailing of a boat ſo full of people. Fortunately, the iſlanders, buſy in plundering the long-boats, did not think of purſuing us. Our whole means of defence conſiſted of four or five cutlaſſes, and a charge for two or three muſkets; a poor reſource againſt two or three hundred barbarians armed with ſtones and clubs, and maſters of light canoes which would enable them to chooſe their diſtance. Several of theſe

canoes came out of the bay ſhortly after we left it; but they made ſail along ſhore, whence one of the number ſet off to give information to thoſe that had remained alongſide the frigates. The Indians on board had the inſolence to make menacing ſigns as they paſſed by; but our ſituation obliged us to ſuſpend our vengeance, and to reſerve our feeble means for ſelf-defence.

"As ſoon as we were in the offing, we pulled up with the wind on end towards the frigates, hoiſting a red handkerchief at the maſt-head, and on our nearer approach, firing our three laſt muſket ſhots. M. Mouton made alſo the ſignal for aſſiſtance with two handkerchiefs; but we were almoſt alongſide before we were perceived. The Aſtrolabe, the neareſt of the two frigates, then bore down upon us; and at half paſt four I put thoſe who were the moſt ſeverely wounded on board of her. M. Mouton having done the ſame, we repaired without delay to the Bouſſole, where I informed the commodore of this diſaſtrous event. After the precautions with which his prudence had inſpired him, and the juſt confidence he had placed in that of M. de Langle, his ſurpriſe was extreme; and I can only compare his grief to that which I felt myſelf. Our preſent misfortune reminded us ſtrongly of that of July 13th, 1786, and helped to throw a ſtill ſtronger gloom over our voyage; though in this laſt circumſtance we were ſtill fortunate in ſaving the greater part of thoſe

who had gone aſhore. If the deſire of plunder had not for a moment ſtopped or fixed the fury of the ſavages, not a man of us would have eſcaped.

"It is impoſſible to deſcribe the conſternation occaſioned by this fatal event on board the two frigates. The death of M. de Langle, who enjoyed the confidence and eſteem of his crew, was matter of the deepeſt regret to every one. The iſlanders who were alongſide when I came on board, were on the point of being immolated to the vengeance of our ſailors, whom we found it extremely difficult to reſtrain. The general affliction which reigned on board is the beſt panegyric that can be pronounced on the captain. As to myſelf, I loſt in him rather a friend than a commander. The kindneſs with which he treated me will make me regret him to the laſt moment of my exiſtence, and happy ſhould I have been if I could have proved my attachment and my gratitude by ſacrificing it in his defence. But this brave officer, being more expoſed than any one elſe, was the firſt who fell a prey to the wild beaſts that aſſailed us. In my weak and convaleſcent ſtate, I had gone aſhore without arms, under the protection of others; and when I reached the barge all the ammunition was either exhauſted or wet. All then that I could do was to give orders, which were unfortunately of too little effect.

"I ſhould do injuſtice to thoſe who like me had

the good fortune to ſave their lives, if I did not declare that they conducted themſelves with all poſſible bravery and *ſang-froid*. Meſſieurs Boutin and Colinet, who, notwithſtanding their bad wounds, were perfectly collected, had the goodneſs to aſſiſt me with their advice; and I was alſo ably ſeconded by M. le Gobien, who was the laſt to leave the long-boat, and whoſe example, intrepidity, and diſcourſe, contributed not a little to reaſſure ſuch of the ſailors as felt themſelves diſmayed. The petty officers, ſoldiers, and ſeamen, executed the orders given them with equal punctuality and zeal; and M. Mouton had no leſs reaſon to be ſatisfied with the crew of the Bouſſole's barge.

"Every one who was on ſhore can atteſt with me that no violence or imprudence on our part provoked the attack of the ſavages. Our captain had given the ſtricteſt orders in that reſpect, and they were univerſally obeyed.

(Signed) VAUJUAS."

Liſt of the Perſons maſſacred by the Savages of the Iſland of Maouna, December 11, 1787.

THE ASTROLABE.

M. DE LANGLE, poſt captain, commander.

YVES HUMON, JOHN REDELLEG, FRANCIS FERRET, LAURENCE ROBIN, and a Chineſe, ſeamen.

Louis David, quarter-gunner.

John Geraud, domeſtic.

The Boussole.

M. de Lamanon, natural philoſopher and naturaliſt.

Peter Talin, gunner.

Andrew Roth and Joseph Rayes, quarter-gunners.

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CHAPTER XXV.

Departure from the iſland of Maouna.—Deſcription of the iſland of Oyolava.—Exchanges with its inhabitants.—We make the iſland of Pola.—New details concerning the manners, arts, and cuſtoms of theſe iſlands, and concerning the productions of their ſoil. — We fall in with Cocoa-nut and Traitor iſlands.

THE 14th of December I ſtood for the iſland of Oyolava, of which we had ſight five days before we arrived at the anchorage, that proved ſo fatal to us. M. de Bougainville had obſerved the ſouthern part of it, laid down in his plan of this archipelago, from a very great diſtance. This iſland is ſeparated from that of Maouna, or *of the Maſſacre*, by a channel about nine leagues wide, and is at leaſt equal to Otaheite in beauty, in extent, fertility, and population. When at the diſtance of three leagues from its north-eaſt point, we were ſurrounded by innumerable canoes laden with bread-fruit, cocoa-nuts, bananas, ſugar-canes, pigeons, and *gallinules*, with a very few hogs. The inhabitants of this iſland much reſemble thoſe of the iſland of Maouna, who had

had behaved to us with ſuch horrible treachery. Their dreſs, their features, and their gigantic ſtature, were ſo little different, that our ſeamen thought they recollected ſeveral of the aſſaſſins, and it was with great difficulty that I prevented their firing upon them: but I was certain, that they were blinded by their reſentment; and a revenge, which I did not think allowable upon the canoes of the very iſland of Maouna, at the moment I was informed of the dreadful event, could not be juſtly taken four days afterwards, in another iſland, and at fifteen leagues from the field of battle. I contrived, then, to appeaſe the fermentation, and we continued our exchanges. It was conducted with more tranquillity and honeſty than at the iſland of Maouna, becauſe the ſmalleſt acts of injuſtice were puniſhed with blows, or repreſſed by threatening words and geſtures. At four o'clock in the afternoon we brought to abreaſt of perhaps the largeſt village that exiſts in any iſland of the South Sea, or rather oppoſite a very extenſive inclined plain, covered with houſes from the ſummit of the mountains to the water-ſide. Theſe mountains are nearly in the middle of the iſland, whence the ground deſcends with a gentle declivity, and preſents to ſhips an amphitheatre covered with trees, huts, and verdure. We ſaw the ſmoke riſe from the interior of the village as from the midſt of a great city; while the ſea was covered with canoes, all of which endeavoured to approach our

veſſels, ſeveral of them being paddled along by idle gazers, who, having nothing to ſell, went round and round our frigates, and appeared to have no object in view, but to enjoy the ſpectacle we afforded them.

The preſence of the women and children, who were among them, might have led us to preſume, that they had no bad intention; but we had great reaſon to truſt no longer to ſuch appearances, and we were prepared to repel the leaſt act of hoſtility, in a manner that would have rendered the navigators formidable to the natives. I am a good deal inclined to believe, that we are the firſt who have traded with theſe people. They were perfectly unacquainted with iron, conſtantly refuſing that which we offered them, and preferring a ſingle bead to an axe, or a nail ſix inches long. Rich in the ſubſtantial bleſſings of nature, they ſought in their exchanges nothing but ſuperfluities, and articles of luxury. Among a conſiderable number of women, I remarked two or three of agreeable countenance, who might be ſuppoſed to have ſerved as a model for the deſign of the young woman bearing preſents in Cook's third voyage. Their hair ornamented with flowers, and tied round with a green ribbon in the way of a *bandeau*, was plaited with graſs and moſs; their ſhape was elegant; their arms were well turned and admirably proportioned; and their eyes, their countenances,

and

and their geſtures, beſpoke great ſweetneſs of temper, while thoſe of the men expreſſed nothing but ſurpriſe and ferocity.

In the duſk of the evening we filled our ſails and ſtood on, abreaſt of the iſland, all the canoes returning to the ſhore. The beach, covered with breakers, offered no ſhelter to our ſhips, becauſe a high ſea from the north-eaſt broke with fury againſt the north coaſt, along which we were navigating. If I had intended to anchor, I ſhould probably have found good ſhelter on the weſt ſide. In general, within the tropics, it is only to leeward of the iſlands that navigators ought to ſeek an anchorage. The whole of the next day a flat calm prevailed, with frequent flaſhes of lightning followed by thunder and rain. Very few canoes came alongſide, which led me to believe, that they had heard at Oyolava of the event that had taken place at Maouna. As it was poſſible, however, that they were kept in their ports by the rain and lightning, my conjecture may have been ill-founded; but it acquired a high degree of probability on the 17th, when we were abreaſt of the iſland of Pola. Though we approached much nearer to it than to the former, not a ſingle canoe came off. Hence I preſumed, that theſe people had not yet made ſufficient progreſs in morality to know, that the penalty ought only to fall upon the culpable, and that the puniſhment of the real aſſaſſins could alone

ſatisfy

ſatisfy our vengeance. The iſland of Pola, ſomewhat ſmaller than that of Oyolava, but equally beautiful, is only ſeparated from it by a channel four leagues acroſs, which is itſelf interſected by two iſlots of ſome little extent. One of them is low, well wooded, and probably not deſtitute of inhabitants. The north coaſt of Pola, like that of the other iſlands of this archipelago, affords no acceſs to ſhipping; but on doubling its weſt point, the navigator will find a ſmooth ſea without breakers, which promiſes excellent roadſteds.

We had learnt from the natives of Maouna, that the Navigators Iſlands are ten in number; namely: Opoun, the moſt eaſterly; Leoné, Fanfoué, Maouna, Oyolava, Calinaſſé, Pola, Shika, Oſſamo, and Ouera.

We are unacquainted with the poſition of the laſt three. The Indians, in the plan they traced, laid them down ſouth of Oyolava; but if ſo ſituated, it is certain, that the courſe ſteered by M. Bougainville muſt have brought him in ſight of them. Notwithſtanding all the patience and ſagacity of M. Blondela, who took particular pains to get ſome geographical information out of the iſlanders, he was perfectly unable to form any conjecture concerning their bearings; but the ſequel of our voyage taught us, that two of them may poſſibly be Cocoa and Traitor iſlands, laid down, according

to

to captain Wallis's obſervations, 1° 15′ too far weſt.

Opoun, the moſt ſoutherly, as well as the moſt eaſterly of theſe iſlands, is in 14° 7′ ſouth latitude, and 171° 27′ 7″ weſt longitude. Several geographers attribute this diſcovery to Roggewein. According to them he gave them the name of *Beauman's Iſlands* in 1721; but neither the hiſtorical details concerning theſe people, nor the geographical poſition aſſigned to the iſlands by the writer of Roggewein's voyage*, agree with that opinion. Let us hear what he ſays on the ſubject himſelf.

"We diſcovered three iſlands at the ſame time, "in the 12th degree of latitude, of a very agreeable "appearance. We found them well ſtocked with "fine fruit trees, and all ſorts of herbs, vegetables, "and plants. The natives, who came out to meet "our veſſels, offered us a great variety of fiſh, "with cocoa-nuts, bananas, and other fruit. Theſe "iſlands muſt be very well peopled, ſince at our "arrival the beach was already crowded with ſeveral "thouſand men and women, the former armed with "bows and arrows. All the inhabitants are white,

* The hiſtorical relation of Roggewein's voyage, brought to France by the preſident de Broſſes, was written in the French language in 1739, by a German, a native of Mecklenburg, and ſerjeant of the troops embarked on board Roggewein's fleet.

"and

" and do not differ from Europeans, except that " ſome of them have their ſkin much burned by the " exceſſive heat of the ſun. They appeared a good " ſort of people, lively, and gay in converſation, " and kind and humane towards one another. No- " thing indeed ſavage is obſervable in their man- " ners. Neither were their bodies painted like " thoſe whom we had before diſcovered. They " were clad from the waiſt to the ancle with fringes " of a ſilken ſtuff, ſkilfully wrought; and their " heads were covered with very large and fine hats, " to protect them from the heat of the ſun. Some " of theſe iſlands were ten, fourteen, and even " twenty miles in circumference. We called them " Beauman's Iſlands, after the name of the captain " of the Tienhoven, by whom they were firſt diſ- " covered. It muſt be confeſſed (adds the author) " that they are the moſt civilized and honeſt nation " we have met with in the iſlands of the South Sea. " There is good anchorage all along the coaſts of " theſe iſlands, in water from thirteen to twenty " fathoms."

It will be ſeen in the ſequel of this chapter, that theſe details have ſcarcely the leaſt relation to thoſe which we have to give concerning the people of Navigators Iſlands. As the geographical poſition is equally unlike, and as a German chart exiſts in which the track of Roggewein is marked,

marked, and which lays down theſe iſlands in 15°, I am juſtified in believing, that Beauman's Iſlands are not the ſame as thoſe, to which M. de Bougainville has given the name of *Navigators Iſlands*. It appears to me, however, neceſſary to let them retain that denomination, in order that a confuſion may not be introduced into geography very hurtful to the progreſs of the ſcience. Theſe iſlands, ſituated about the 14° of ſouth latitude, and between the 171ſt and 175th degrees of weſt longitude, form one of the fineſt archipelagoes of the South Sea; and are as intereſting in point of arts, productions, and population, as the Society and Friendly Iſlands, of which the Engliſh navigators have given us a deſcription highly ſatisfactory. As to the moral qualities of the natives, although our intercourſe was but of a moment's duration, we had but too much reaſon to be acquainted with their diſpoſition, and we have no heſitation in aſſerting, that it would be vain to endeavour to excite the ſentiment of gratitude in their ferocious minds, which are only to be reſtrained by fear.

Theſe iſlanders are the talleſt and beſt made that we have yet met with. Their uſual height is five feet nine, ten, and eleven inches; but their ſtature is leſs aſtoniſhing than the coloſſal proportions of the different parts of their bodies. Our curioſity, which often led us to meaſure them, gave them an opportunity of making frequent compariſons of their bodily

bodily ſtrength with ours. Theſe compariſons were not to our advantage; and we perhaps owe our misfortunes to the idea of individual ſuperiority reſulting from repeated trials. Their countenances often appeared to expreſs a ſentiment of diſdain, which I hoped to deſtroy, by ordering our arms to be uſed in their preſence; but my end could only have been gained by directing them againſt human victims; for, otherwiſe, they took the noiſe for ſport, and the trial for a diverſion.

Among theſe Indians a very ſmall number is below the height indicated above. I have, however, meaſured ſeveral who were only five feet four inches, but theſe are the dwarfs of the country; and although their ſtature reſembles ours, their ſtrong and nervous arms, their broad cheſts, and their legs and thighs, are of a very different proportion. It may be ſafely ſaid, that they are in regard to Europeans, what Daniſh horſes are in reſpect to thoſe of the different provinces of France.

The men have the body painted or tatowed, ſo that any one would ſuppoſe them clad, although they go almoſt naked. They have only a girdle of ſea weeds encircling their loins, which comes down to their knees, and gives them the appearance of the river gods of fabulous hiſtory, whom it is cuſtomary to depict with ruſhes round their waiſt. Their hair is very long. They often twiſt it round their heads, and thus add to their native ferocity of countenance,

countenance, which always expreſſes either ſurpriſe or anger. The leaſt diſpute between them is followed by blows of ſticks, clubs, or paddles, and often, without doubt, coſts the combatants their lives. They are almoſt all covered with ſcars, which can only be the conſequence of their individual quarrels. The ſtature of the women is proportioned to that of the men. They are tall, ſlender, and not without grace; but they loſe, while yet in their prime, thoſe elegant forms, of which nature has not broken the mould among this barbarous race, but of which ſhe appears to leave them in poſſeſſion only for a moment, and with reluctance. Among a great number of women that I had an opportunity of ſeeing, I only obſerved three really pretty. The groſs effrontery of the reſt, the indecency of their motions, and the diſguſting offers which they made of their favours, rendered them fit mothers and wives for the ferocious beings that ſurrounded us. As the hiſtory of our voyage may add a few pages to that of man, I ſhall not expunge ſome traits, that might ſeem indecent in any other work. I have to relate, then, that the very ſmall number of young and pretty females, of whom I have already ſpoken, ſoon attracted the attention of ſeveral Frenchmen, who, in ſpite of my prohibition, endeavoured to form a connexion with them. The looks of the Europeans expreſſed deſires which were ſoon divined; ſome old women undertook the negotiation;

negotiation; the altar was prepared in the handſomeſt hut in the village; and all the blinds were let down, and the inquiſitive excluded. The victim was then laid in the arms of an old man, who exhorted her, during the ceremony, to moderate the expreſſion of her pain; while the matrons ſang, and howled; the ceremony being performed in their preſence, and under the auſpices of the old man, who ſerved at once as prieſt and altar. All the women and children in the village were round the houſe, gently lifting up the blinds, and ſeeking to enjoy the ſight through the ſmalleſt crevices in the mats. Whatever former navigators may have ſaid, I am convinced, that in the Navigators Iſlands, at leaſt, the young girls, before they are married, are miſtreſſes of their perſons, and that they are not diſhonoured by their complaiſance. It is even more than probable, that in marrying they are called to no account concerning their paſt conduct; but I have no doubt that they are obliged to be more reſerved when provided with a huſband.

Theſe people cultivate certain arts with ſucceſs. I have already ſpoken of the elegant form which they give to their huts. It is not without reaſon that they diſdain our inſtruments of iron; for they finiſh their work very neatly with tools made of a very fine and compact ſpecies of baſaltes in the form of an adze. For a few glaſs beads they ſold us large three-legged diſhes, of a ſingle piece of wood, and

ſo

ſo well poliſhed, that they ſeemed to have been laid over with a coat of the fineſt varniſh. It would take an European workman ſeveral days to produce one of theſe diſhes, which, for want of proper inſtruments, muſt coſt an Indian ſeveral months labour. They ſet, however, ſcarcely any value upon them, becauſe they ſet little upon the time they employ. The fruit trees, and nutritious roots, that grow ſpontaneouſly around them, inſure them their ſubſiſtence, as well as that of their hogs, dogs, and fowls; and if they ſometimes ſtoop to work, it is to procure enjoyments rather agreeable than uſeful. They manufacture very fine mats, and ſome paper-ſtuffs. I remarked two or three of them whom I took for chiefs, with a piece of cloth tied round their waiſt like a petticoat, inſtead of a girdle of weeds. It is compoſed of real thread, prepared, no doubt, from ſome filamentous plant like the nettle or flax; and is manufactured without a ſhuttle, the threads being abſolutely laid over one another like thoſe of their mats. This cloth, which has all the ſuppleneſs and ſolidity of ours, is very fit for the ſails of their canoes; and appeared to us far ſuperior to the paper ſtuff of the Society and Friendly Iſlands, which they manufacture alſo. They ſold us ſeveral pieces; but they hold it very cheap, and make very little uſe of it, the women preferring the fine mats which I have ſpoken of above.

We did not at firſt diſcover any identity between

their language and that of the natives of the Society and Friendly Iſlands, of which we had vocabularies; but a more mature examination convinced us, that they ſpeak a dialect of the ſame language. A fact which tends to prove it, and which confirms the opinion of the Engliſh concerning the origin of theſe people, is that a young domeſtic, a native of the province of Tagayan in the north of Manilla, underſtood and explained to us the greater part of their words. It is well known that the Tagayan, the Talgal, and the generality of languages ſpoken in the Phillippines, are derived from the Malay; a language more diffuſed than were thoſe of the Greeks and Romans, and common to the numerous tribes, that inhabit the iſlands of the great Paciſic Ocean. It appears to me evident, that all theſe different nations are the progeny of Malay colonies, which, in ſome age extremely remote, conquered the iſlands they inhabit. I ſhould not even wonder, if the Chineſe and Egyptians, whoſe antiquity is ſo much vaunted, were mere moderns in compariſon of the Malays. But however this may be, I am ſatisfied that the aborigines of the Phillippine Iſlands, Formoſa, New Guinea, New Britain, the New Hebrides, the Friendly Iſlands, &c. in the ſouthern hemiſphere, and thoſe of the Marianna and Sandwich iſlands in the northern, were that race of woolly-headed men ſtill found in the interior of the iſlands of Luconia and Formoſa.

They

They were not to be ſubjugated in New Guinea, New Britain, and the New Hebrides; but being overcome in the more eaſtern iſlands, which were too ſmall to afford them a retreat in the centre, they mixed with the conquering nation. Thence has reſulted a race of very black men, whoſe colour is ſtill ſeveral ſhades deeper than that of certain families of the country, probably, becauſe the latter have made it a point of honour to keep their blood unmixed. I was ſtruck with theſe two very diſtinct races in the Iſlands of Navigators, and cannot attribute to them any other origin.

The deſcendants of the Malays have acquired in thoſe iſlands a degree of vigour and ſtrength, a lofty ſtature, and a herculean form, which they do not inherit from their forefathers, but which they owe, without doubt, to an abundance of food, to a mild climate, and to the influence of different phyſical cauſes, which have been conſtantly acting during a long ſeries of generations. The arts, which they, perhaps, brought with them, may have been loſt for want of materials and inſtruments to practiſe them; but the identity of language, like Ariadne's clue, enables the obſerver to follow all the windings of this new labyrinth. The feudal government is alſo preſerved here: that government which little tyrants may regret; which was the diſgrace of Europe for ſeveral centuries; and of which the gothic remains are ſtill to be found in our laws, and are

the medals that atteſt our ancient barbariſm: that government, which is the moſt proper to keep up a ferocity of manners, becauſe the ſmalleſt diſputes occaſion wars of village againſt village, and becauſe wars of this nature are conducted without magnanimity, and without courage. Surpriſes and treachery are employed by turns, and in theſe unfortunate countries, inſtead of generous warriors, nothing is to be found but baſe aſſaſſins. The Malays are ſtill the moſt perfidious nation of Aſia, and their children have not degenerated, becauſe the ſame cauſes have led to, and produced the ſame effects. It may be objected, perhaps, that it muſt have been very difficult for the Malays to have made their way from weſt to eaſt, to arrive at theſe different iſlands; but the weſterly winds blow as frequently as the eaſterly in the vicinity of the equator, along a zone of ſeven or eight degrees from north to ſouth, where the wind is ſo variable, that it is hardly more difficult to navigate eaſt than weſt. Beſides, theſe different conqueſts may not have been effected at the ſame time: the people in queſtion may, on the contrary, have ſpread themſelves by little and little, and gradually have introduced that form of government which ſtill exiſts in the peninſula of Malacca, at Java, Sumatra, and at Borneo, as well as in all the other countries ſubject to that barbarous nation.

Among fifteen or eighteen hundred Indians, whom we had an opportunity of obſerving, thirty, at leaſt, had

had the appearance of chiefs. They kept up a kind of police, and belaboured the refractory with their ſticks; but the order, which they had the air of wiſhing to eſtabliſh, was tranſgreſſed a minute afterwards. Never were ſovereigns worſe obeyed; never were more frequent diſorders occaſioned by anarchy and a want of ſubordination.

It is not without reaſon, that M. de Bougainville has named them *the Navigators*. They do not go ſo much as from one village to another on foot; but perform all their journies in canoes. Their villages are all ſituated in creeks by the ſea-ſide, and have no paths except to penetrate into the interior of the country. The iſlands we viſited were covered to the very ſummit with fruit trees, on which wood-pigeons and turtle-doves, green, red, and of various other colours, were ſitting. We alſo ſaw beautiful perroquets, a ſpecies of black-bird, and even partridges. It is by taming birds that the natives charm away the *tædium* that reſults from their idle mode of life. All their houſes were full of wood pigeons, which they bartered with us by hundreds. They alſo ſold us more than three hundred gallinules of the moſt beautiful plumage.

Their canoes have outriggers, are very ſmall, and generally contain only five or ſix perſons: ſome few, however, may contain as many as fourteen. They do not appear to deſerve the praiſe that navigators have beſtowed on their ſwiftneſs. I do not think

when under ſail that it exceeds ſeven knots; and with their paddles they could not keep way with us when we were running only four miles an hour. Theſe Indians are ſuch excellent ſwimmers, that their canoes ſeem only to ſerve them to reſt themſelves in. As upon the leaſt falſe movement they fill, they are obliged every moment to leap into the ſea, take up their ſinking veſſels upon their ſhoulders, and pour out the water. They ſometimes join two together by means of a croſs-piece of wood, in which they make a ſtep to receive the maſt. In this way they are leſs likely to overſet, and can preſerve their proviſion during a long voyage. Their ſails are of matting, or of matted cloth, are extended by a ſprit, and do not deſerve a particular deſcription.

Their only modes of fiſhing are with the hook and line, and ſweep-net. They ſold us ſome of the nets, and baits of mother of pearl, and white ſhells very ſkilfully wrought. Theſe inſtruments are in the ſhape of flying fiſh, and have a hook attached to them made of tortoiſe-ſhell, and ſtrong enough to hold a tunny, boneta, or dorado. They exchanged their largeſt fiſh for a few glaſs beads, and it was eaſy to ſee by their eagerneſs, that they were in no fear of wanting food.

The iſlands of this archipelago, that I viſited, appeared to me volcanic. All the ſtones of the beach, on which the ſea breaks with ſuch fury as to throw

up the water more than fifty feet high, are nothing but pieces of lava, or baſaltes in the form of pebbles, and of coral, with which the whole iſland is ſurrounded. The coral leaves in the middle of almoſt all the creeks a paſſage, which, though narrow, is ſufficient for canoes, and even for boats and long-boats; and thus forms little ports for the navy of the iſlanders, who never leave their canoes in the water; but on coming aſhore lodge them near their houſes, under the ſhade of trees. They are ſo light that two men can carry them upon their ſhoulders with eaſe.

The moſt lively imagination would find it difficult, to figure to itſelf ſituations more agreeable than thoſe of their villages. All the houſes are built under fruit trees, which keep them delightfully cool. They are ſeated upon the borders of ſtreams, which run down from the mountains, and by the ſide of which are paths, that lead into the interior of the iſland. The principal object of their architecture is to protect them from the heat, and I have already ſaid, that to this advantage they add that of elegance. Theſe houſes are ſufficiently ſpacious to lodge ſeveral families; and are ſurrounded with blinds, which are drawn up to windward, and ſhut upon the ſunny ſide. The iſlanders ſleep upon very fine and clean mats, perfectly out of the way of all humidity. We perceived no *morai*; neither can we ſay any thing of their religious rites.

Theſe iſlands abound with hogs, dogs, fowls, birds, and fiſh. They are alſo covered with cocoa-nut, guava, and banana trees, as well as another tree bearing a large nut that is eaten roaſted, and that in taſte much reſembles a cheſnut. Sugar-canes grow ſpontaneouſly upon the banks of the rivers; but they are watery, and contain leſs ſaccharine matter than thoſe of our Weſt India iſlands; a difference which proceeds, no doubt, from their growing in the ſhade, without cultivation, and upon too rank a ſoil.

Notwithſtanding the danger of making an excurſion into the interior of the iſland, Meſſieurs de la Martinière and Collignon rather followed the impulſions of their zeal, than the dictates of prudence; and, at the time of the landing that proved ſo fatal to us, advanced ſome diſtance inland in order to make botanical diſcoveries. The Indians exacted a glaſs bead for every plant picked up by M. de la Martinière, and threatened to knock him down when he refuſed to make them the retribution required. Followed by a ſtorm of ſtones at the moment of the maſſacre, he ſwam to the barges, with his bag of plants upon his back, and by theſe means brought them ſafe on board. Till then we had perceived no other arms but clubs, or *patow-patows*; but M. Boutin aſſured me, that he had ſeen ſeveral bundles of arrows in their hands, but nothing like a bow. I am inclined to think, that what he took for arrows were only

only lances, which ſerve them to ſtrike fiſh. Their effect in a battle would be far leſs murderous than that of ſtones of two or three pounds weight, which they throw with inconceivable vigour and addreſs. Theſe iſlands are exceedingly fertile, and I ſhould ſuppoſe, that their population is very conſiderable. The eaſtern ones, Opoun, Leoné, and Fanfoué, are ſmall, eſpecially the laſt two, which are about five miles in circumference; but Maouna, Oyolava, and Pola, may be numbered among the largeſt and moſt beautiful of the South ſea. The accounts of the different navigators preſent no picture to the imagination at all comparable to the beauty and immenſe extent of the village, to leeward of which we lay to on the north coaſt of Oyolava. Although it was almoſt night when we arrived there, we were inſtantly ſurrounded with canoes; that curioſity, or the deſire of traffick, had brought out of their ports. Several of them had nothing on board, and only came to enjoy the novel ſight we afforded them. There were ſome among them extremely ſmall, containing only a ſingle man, and covered with ornaments. As they paddled round the ſhips without making any exchanges, we called them whiſkies *(cabriolets)*, of which they poſſeſs the bad qualities; for the ſlighteſt contact of the other canoes overſet them every moment. We had alſo a near view of the great and noble iſland of Pola; but we had no intercourſe with its inhabitants. On doubling

bling the weſtern part of this laſt-mentioned iſland we perceived ſmooth water, which promiſed good anchorage as long, at leaſt, as the wind ſhould blow from the eaſtward, but the fermentation among the crew was too great to permit me to think of coming to an anchor. After the event that had happened to us, I could not prudently ſend our ſeamen aſhore, without arming each man with a muſket, and each boat with a ſwivel; and then the conſciouſneſs of their ſtrength, added to their deſire of revenge, would perhaps have induced them to repreſs the ſmalleſt act of injuſtice on the part of the ſavages with muſket ſhot. Beſides, in theſe bad anchorages a ſhip runs a riſk of being loſt, when unprovided with a boat capable of carrying out an anchor, by which ſhe may warp out.

It was in conſequence of theſe conſiderations, that I determined, as I have already ſaid, not to anchor till I ſhould reach Botany Bay, confining myſelf to purſue ſuch tracks in the different archipelagoes, as were likely to lead me to new diſcoveries.

When we had weathered the weſtern coaſt of the iſland of Pola, we loſt ſight of all land. We had ſeen nothing of three iſlands which the ſavages had called Shika, Oſſamon, and Ouera, and to which they had aſſigned a poſition ſouth of Oyolava. I made every effort to ſtand to the ſouth-ſouth-eaſt; but was at firſt prevented by a breeze from the eaſt-ſouth-eaſt, ſo light that we only ran ten or twelve leagues

leagues a day. At laſt it ſhifted ſucceſſively to the north, and north-eaſt, which enabled me to make eaſting in my courſe, and on the 20th I got ſight of a round iſland, preciſely ſouth of Oyolava, but nearly forty leagues off. M. de Bougainville, who paſſed between theſe iſlands, did not perceive the former, becauſe he was a few leagues too far to the northward. Want of wind did not permit me to approach it that day; but on the following I ran within two leagues of the coaſt, and ſaw two other iſlands to the ſouthward, which I plainly diſcovered to be Cocoa and Traitors iſlands of Schouten. Cocoa Iſland is very lofty, and in the ſhape of a ſugar-loaf: it is covered with trees to the ſummit, is nearly a league in diameter, and is ſeparated from Traitors Iſland by a channel about three miles wide. This channel is itſelf interſected by a ſmall iſland, which we perceived at the north-weſt point of the one laſt mentioned. Traitors Iſland is low and flat, with only a hill of ſome height in the middle; and is divided into two parts by a channel, of which the mouth is about 150 toiſes wide. Schouten had no opportunity of ſeeing it, becauſe for that purpoſe it is neceſſary to be in the oppoſite point of the compaſs; we ourſelves ſhould not have even ſuſpected its exiſtence, if we had not run cloſe in with that quarter of the iſland. We had no longer any doubt that theſe three iſlands, of which two alone deſerve the name, were in the number of the ten, which,

which, according to the accounts of the ſavages, compoſe the archipelago of the Navigators. As it blew very freſh from the north-weſt, as the weather had a very threatening appearance, and as it was late in the day, I was very little ſurpriſed at ſeeing no canoe come on board, and determined to paſs the night in ſtanding off and on, in order to reconnoitre the land the following day, and to trade with the Indians for a few refreſhments. The weather was ſqually, and the wind only varied from north-weſt to north-north-weſt. I had perceived ſome breakers on the north-weſt point of the Little Iſland of Traitors, which made me work out a little into the offing. At day break I neared the laſt-mentioned iſland, which, being lower and more extenſive than Cocoa Iſland, I thought likely to be better peopled. At eight o'clock in the morning I brought to to the weſt-ſouth-weſt at two miles from a ſandy bay which is in the weſtern part of the Great Iſland of Traitors, and in which I did not doubt finding an anchorage ſheltered from eaſterly winds. About twenty canoes immediately left the ſhore, and approached the ſhips in order to make exchanges: ſeveral had alſo come out of the channel that divides the Iſland of Traitors; and were loaded with the fineſt cocoa-nuts I had ever ſeen, with a ſmall number of bananas, and with a few yams. One alone brought out a ſmall hog and three or four

four fowls. It was eaſy to perceive, that theſe Indians had already either ſeen or heard of Europeans. They approached without fear, traded with a good deal of honeſty, and never refuſed, like the natives of the archipelago of Navigators, to give their fruit before they were paid for it; or, like them, did they give a preference to beads over nails and pieces of iron. They ſpoke, however, the ſame language, and had the ſame ferocious look; their dreſs, their manner of tatowing, and the form of their canoes, were the ſame; nor could we doubt that they were one and the ſame people: they differed, indeed, in having univerſally two joints cut off from the little finger of the left hand, whereas in the iſlands of Navigators I only perceived two individuals, who had ſuffered that operation. They were alſo of much lower ſtature, and far leſs gigantic make; a difference proceeding, no doubt, from the ſoil of theſe iſlands, which being leſs fertile, is conſequently leſs favourable to the expanſion of the human frame. Every iſland that we ſaw recalled to our minds ſome trait or other of Indian perfidy: Roggewein's crew had been attacked and ſtoned at the Recreation Iſlands to the eaſtward of the Iſlands of Navigators; Schouten's at Traitors Iſland, which was in ſight, and lay ſouth of that of Maouna, where we had ourſelves been treated in ſo atrocious a manner. Theſe reflections had changed our mode of acting in regard to the Indians. We re-

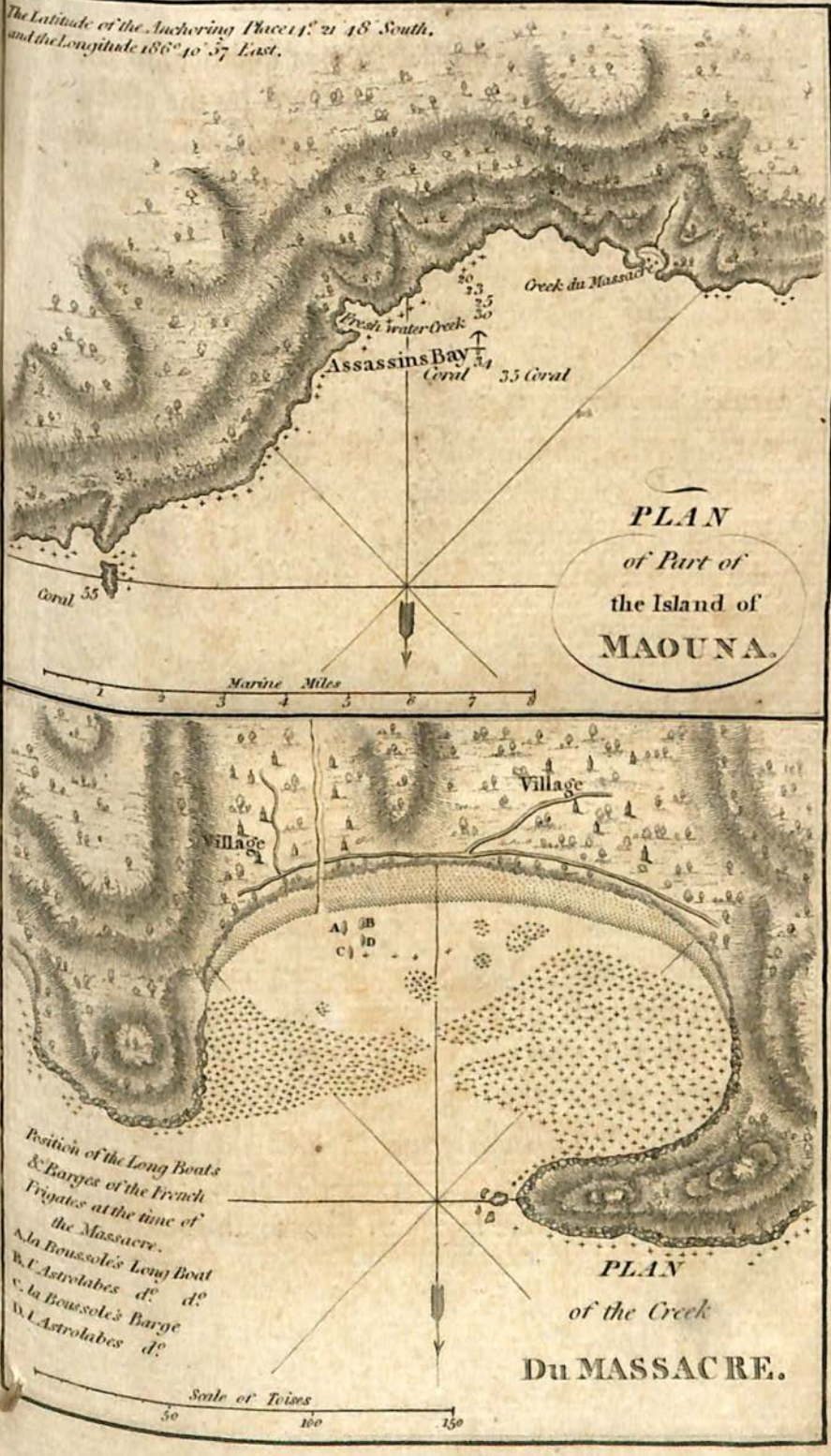
preſſed

preſſed by force the ſmalleſt acts of injuſtice, or the moſt trifling thefts; we ſhewed them by the effects of our arms, that flight would not ſave them from our reſentment; we refuſed them permiſſion to come on board, and we threatened to puniſh with death thoſe who ſhould dare to violate the prohibition. This conduct was a thouſand times preferable to our former moderation; and if we had any reaſon for regret, it was our having arrived among theſe people with principles of mildneſs and patience. Reaſon and common ſenſe tell us, that we have a right to employ force againſt the man who we well know would be our aſſaſſin, if he were not reſtrained by fear.

The 23d, at noon, while we were trading for cocoa-nuts with the Indians, we were aſſailed by a heavy ſquall from the weſt-ſouth-weſt, which diſperſed the canoes. Many were overſet, and after righting again paddled away in haſte for the land. Notwithſtanding the threatening ſtate of the weather, we made the complete circuit of Traitors Iſland, in order to diſcover all its points, and lay down the plan of it with preciſion. M. Dagelet had taken a very good obſervation of the latitude at noon, and in the morning had obſerved the longitude of both iſlands, which enabled him to rectify the poſition aſſigned to them by Wallis. At four o'clock I made the ſignal to ſteer ſouth-ſouth-eaſt

towards

The Latitude of the Anchoring Place 14° 21' 48" South.
and the Longitude 186° 40' 37" East.



PLAN
of Part of
the Island of
MAOUNA.

Position of the Long Boats & Barges of the French Frigates at the time of the Massacre.
A. la Boussole's Long Boat
B. L'Astrolabes do do
C. la Boussole's Barge
D. L'Astrolabes do

PLAN
of the Creek
Du MASSACRE.

towards the archipelago of the Friendly Iſlands, purpoſing to reconnoitre ſuch as captain Cook had not had an opportunity of exploring, and which, according to his accounts, I might expect to find to the north of Inamooka.

CHAPTER XXVI.

Departure from the Iſlands of Navigators.—We direct our route towards the Friendly Iſlands.—Fall in with the iſland of Vavao, and ſeveral others of that archipelago very ill laid down in the charts.—The inhabitants of Tongataboo haſten on board to trade with us.—We anchor at Norfolk Iſland.—Deſcription of that iſland.—Arrival at Botany Bay.

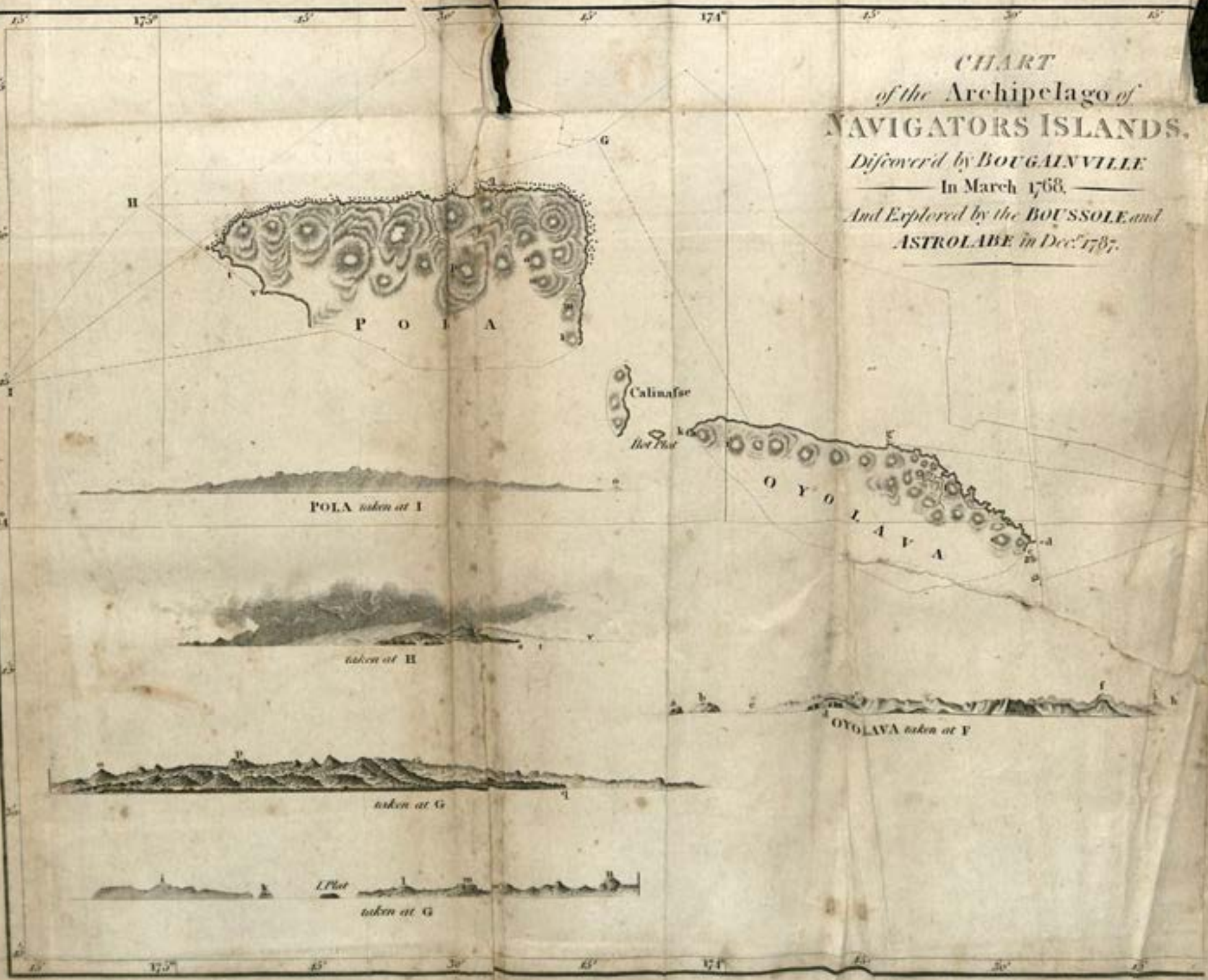
(DECEMBER 1787. JANUARY 1788.)

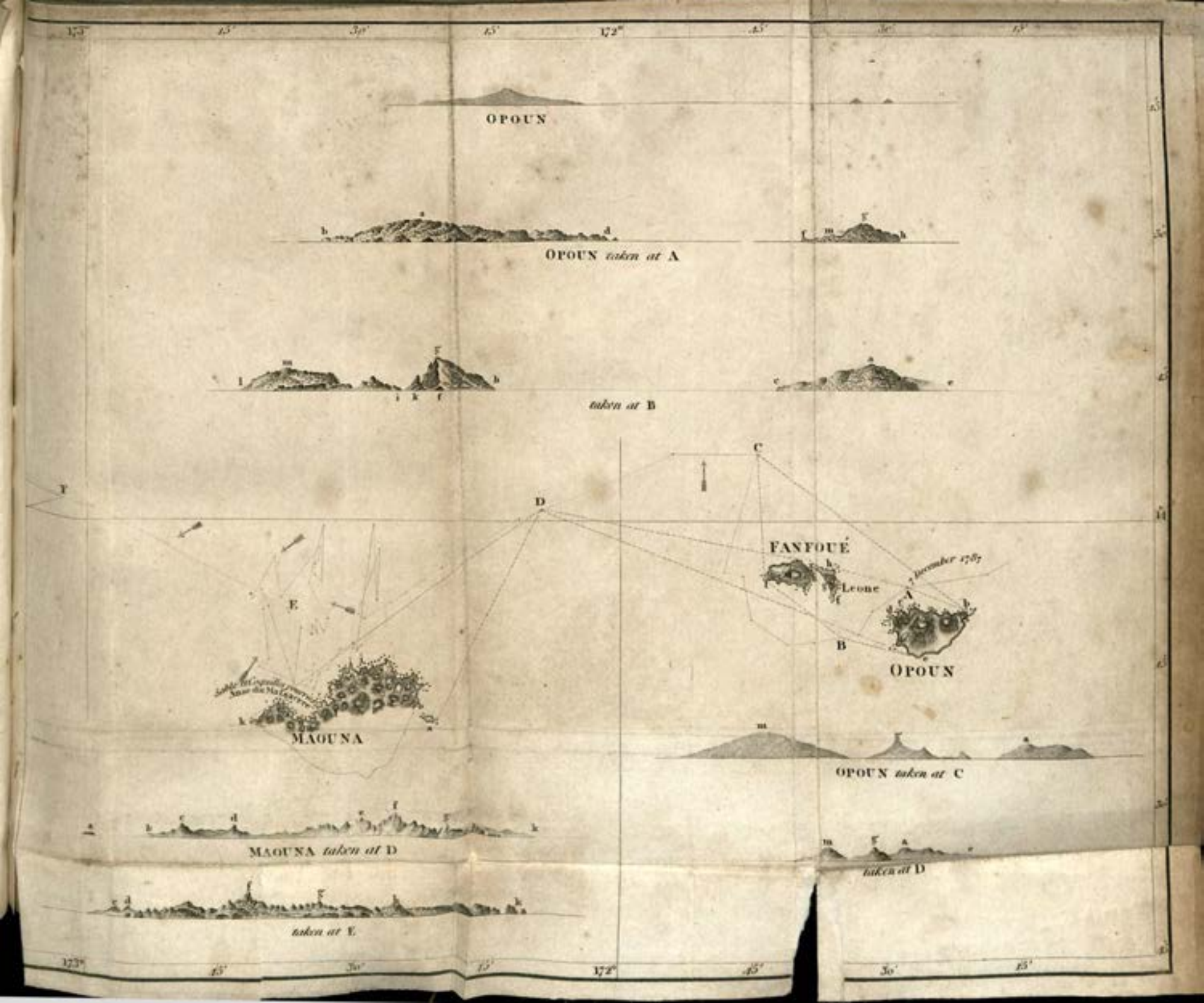
THE night after our departure from Traitors Iſland was a dreadful one. The wind ſhifted to the weſt, and blew hard, with a great deal of rain. As the horizon did not extend a league at ſunſet, I lay to till the next morning with the ſhip's head to the ſouth-ſouth-weſt, the weſt wind ſtill continuing violent, and being ſtill accompanied by heavy ſhowers.

All thoſe who had any ſymptoms of ſcurvy ſuffered exceedingly from the humidity of the atmoſphere. None, indeed, of the crew, was attacked by that diſeaſe; but the officers, and our ſervants in particular, began to feel its effects. I attributed

CHART
of the Archipelago of
NAVIGATORS ISLANDS.

Discovered by **BOUGAINVILLE**
In March 1768.
And Explored by the **BOUSSOLE** *and* **ASTROLABE** *in Dec.r 1787.*




OPOUN
OPOUN taken at A
taken at B
FANFOUÉ
Leone
B
OPOUN
OPOUN taken at C
MAOUNA
MAOUNA taken at D
taken at E
taken at D

it to the want of freſh proviſion, which was leſs ſenſibly felt by the ſailors than by the domeſtics, who had never been at ſea, and conſequently were not accuſtomed to ſuch privations. A man of the name of David, the gun-room cook, died on the 10th, of a ſcorbutic dropſy. Since our departure from Breſt, not one individual on board the Bouſſole had before died a natural death; and if we had only made a common voyage round the world, we ſhould have returned to Europe without the loſs of a ſingle man. The laſt months of a long voyage are always the moſt difficult to ſupport; the body grows weaker with time, and the proviſion ſpoils; but if there be limits that cannot be paſſed, in the length of voyages of diſcovery, it is important to be acquainted with thoſe that may be attained; and I think that on our return to Europe the experiment in that reſpect will be complete. Of all the known preſervatives againſt the ſcurvy, melaſſes and ſpruce beer are, in my opinion, the moſt efficacious. Our ſhips companies continued to drink them in hot climates; a bottle per day being diſtributed to each perſon with half a pint of wine, and a ſmall glaſs of brandy, diluted with a great deal of water; which ſerved to render their proviſion more palateable. The great quantity of hogs which we had procured at Maouna was but a tranſient reſource. As we could not ſalt them becauſe they were too ſmall, or keep them for want of

proper food for their ſubſiſtence, I determined to ſerve out freſh pork twice a day to my crew: then the ſwelling of the legs and all the other ſymptoms of ſcurvy diſappeared. This new regimen had the ſame effect upon our health as a long ſtay in port; which proves, that ſeamen have a leſs urgent need of land air than of ſalubrious aliments.

The north-north-weſt winds followed us beyond the archipelago of the Friendly Iſlands. They were always accompanied with rain, and blew as hard as the weſtern gales that often prevail in the winter upon the coaſt of Brittany. We knew very well, that we were in the winter ſeaſon, and conſequently in that of ſtorms and hurricanes; but we did not expect to meet with ſuch conſtant bad weather. The 27th of December, we diſcovered the iſland of Vavao, of which the weſtern point at noon bore preciſely weſt, our latitude being 18° 34′. This iſland, which captain Cook never viſited, but with the exiſtence of which he was acquainted by the report of the inhabitants of the Friendly Iſlands, is one of that archipelago; being not only almoſt equal to that of Tongataboo in extent, but having, from its greater elevation, the advantage over it of never wanting freſh water. It is in the midſt of a great number of other iſlands, which, no doubt, bear the names captain Cook has given a liſt of, but which it would be extremely difficult for us to

claſs. It would be unjuſt to attribute to ourſelves this diſcovery, which is due to the Spaniſh pilot Maurelle, and which adds to the archipelago of the Friendly Iſlands a number almoſt as conſiderable as that of thoſe already explored by the Engliſh navigator.

I had procured at China an extract from the journal of the above Spaniſh pilot, who ſet off from Manilla in 1781, to execute a commiſſion in America. He purpoſed going thither by the ſouthern hemiſphere, following pretty nearly M. de Surville's track, and endeavouring to get into a high latitude, where he expected with reaſon to meet with weſterly winds. Maurelle was unacquainted with the new methods of determining the longitude; nor had he ever read any of the relations of modern navigators; but was guided in his voyage by the old French charts of Bellin, and make amends by the greateſt exactneſs in his reckoning and bearings, for the imperfections of his method, of his inſtruments, and of his charts. Like M. de Surville, he coaſted along New Ireland, and perceived ſeveral ſmall iſlands which Meſſieurs de Bougainville, Carteret, and Surville, had already gotten ſight of. He alſo diſcovered three or four new ones, and thinking himſelf near Solomon's Iſlands, fell in with a land to the north of Vavao, which he called *Magoura*, becauſe it did not afford him any of the refreſhments of which he ſtood in need. He had no opportunity of ſeeing

another iſland to the eaſt of it, which we fully diſcovered, and which cannot be perceived at more than three or four leagues diſtance, on account of its being very low and flat. At length he arrived at Vavao, where he anchored in a pretty good port, and procured water, and a conſiderable quantity of proviſion. The particulars of his relation were ſo true, that it was impoſſible not to recognize the Friendly Iſlands, and equally difficult to miſtake the portrait of Poulaho, who, being principal chief of all thoſe iſlands, inhabits ſeveral of them occaſionally, but ſeems to make Vavao his more particular reſidence. I ſhall enter into no farther details of this voyage, which I have only mentioned from a principle of juſtice towards pilot Maurelle. He had called the cluſter of Vavao the *Iſlands of Majorca*, after the name of the viceroy of New Spain, and that of Happaee, the Iſlands of Galvez, after the name of the brother of the miniſter for the Indian department; but being perſuaded that it is infinitely preferable to preſerve the country names, I thought proper to inſert no others in M. Bernizet's plan. That plan has been conſtructed according to the latitudes and longitudes determined by M. Dagelet, far more exact than thoſe of the Spaniſh navigator, who laid down theſe iſlands about ſix degrees too far to the weſtward. This error, copied from century to century, and ſanctioned by ſucceſſive geographers, would have given birth to a new archipelago,

archipelago, having no real exiſtence but in the charts.

We made ſeveral boards during the 27th, in order to near the iſland of Vavao, from which we were kept at a ſmall diſtance by the weſt-north-weſt wind. Having made a long ſtretch to the northward during the night, by way of extending my view twelve or fifteen leagues beyond the iſland, I got ſight of Maurelle's Magoura, which bore eaſt; and having approached it, I ſaw another iſland, of little elevation, and covered with trees. The iſland of Magoura, on the contrary, is high land, and it is more than probable that both of them are inhabited. After we had taken all our bearings, I bore up for the iſland of Vavao, which was only to be ſeen from the maſt head. It is the moſt conſiderable of the Friendly archipelago, the other iſlands ſcattered to the northward and weſtward not being comparable to it. Towards noon, I was at the entrance of the port in which Maurelle had anchored. It is formed by ſmall iſlands of ſome elevation, which have narrow, but very deep paſſages between them, and which afford complete ſhelter againſt the winds from the offing. This harbour, infinitely ſuperior to that of Tongataboo, would have ſuited me perfectly well for a ſtay of a few days; but the anchorage is within two cables length of the ſhore; and in that poſition, a long-boat is often neceſſary to carry out an anchor in order to get off the coaſt.

Every inſtant I was tempted to lay aſide the plan I had formed when leaving Maouna, of putting into no port till I ſhould reach Botany Bay; but reaſon and prudence made me reſume it. I was deſirous, however, of making ſome acquaintance with the iſlanders; and brought to at a ſmall diſtance from the land; but not a ſingle canoe came near the ſhips. The weather was ſo bad, and the ſky wore ſuch a threatening aſpect, that I was little ſurpriſed at it; and as the horizon became every moment more and more loaded with clouds, I ſtood away myſelf to the weſtward before night came on, ſteering towards the iſland of Latté, of which we were in ſight, and which in clear weather is to be ſeen at twenty leagues diſtance. The name of Latté is mentioned in the liſt of the Friendly Iſlands given by Cooke; and it was alſo aſſigned to the ſame iſland by Maurelle, in his Journal, in conſequence of information given him by the inhabitants of Vavao, who told him beſides, that it was inhabited, and that ſhips might anchor there. It is eaſy from this to perceive how much it imports to geography to preſerve the true names of countries; for if, like the navigators of former times, or like Maurelle himſelf, we had had an error of ſeven or eight degrees in our longitude, we might have ſuppoſed, on meeting with this iſland, that we were at a great diſtance from the Friendly archipelago. The conformity of language, of manners, and of dreſs, would

not

not have ſufficed to remove our doubts, becauſe it is well known, that there is a great reſemblance between all theſe people, though ſituate very far from one another; whereas the identity of name, and a very ſlight deſcription of the figure and extent of the iſland, formed a certain proof of the identity of place.

The following night was dreadful: the darkneſs in which we were involved was ſo impenetrable, that it was impoſſible to ſee any thing around us. As in this ſtate of the atmoſphere it would have been very imprudent to ſtand on in the midſt of ſo many iſlands, I determined to make ſhort tacks till day-break; but when the day came, it was ſtill more tempeſtuous than the night. The barometer had fallen three lines, and if it were poſſible for a hurricane to blow harder, it certainly could not be announced by weather of a more unpleaſant appearance. I ſteered a courſe, however, for the iſland of Latté, and ſtood within two miles of it, though very certain that no canoe would dare to put to ſea. I was ſo overpreſſed under that iſland by a ſquall, that I was obliged to bear away towards the iſlands of Kao, and Tooſoa, from which we muſt have been but at ſmall diſtance, although the miſt did not permit us to diſtinguiſh them. Theſe two iſlands were laid down for the firſt time upon captain Cook's charts. He paſſed through the channel two miles in width, that ſeparates them

from one another, and determined the latitude and longitude with the greateſt accuracy. It was highly deſirable for us to take this opportunity of verifying the longitude given by our time-keepers. It is true, that I purpoſed going near enough to Tongataboo, in order entirely to complete the compariſon. M. Dagelet with reaſon regarded the obſervatory of Tongataboo as that of Greenwich, the determination of its latitude and longitude being the reſult of more than ten thouſand ſets of obſervations, taken in the ſpace of four or five months by the indefatigable Cook. At five o'clock in the evening, the weather cleared up, and exhibited to our view the iſland of Kao, reſembling in form a very lofty cone, and perceptible at the diſtance of thirty-leagues, when the atmoſphere is clear. The iſland of Tooſoa, though alſo very high, did not ſhew itſelf, but continued ſtill enveloped in the fog. I paſſed the night, like the preceding one, ſtanding off and on, but under the main-top-ſail and fore-ſail only; for it blew ſo freſh, that we could carry no other ſail. The next day the weather was tolerably clear, and at ſun-riſe the iſlands of Kao and Tooſoa were both in ſight. I ran within half a league of the latter, and convinced myſelf that it was uninhabited, three parts of the way round at leaſt; for I ſtood near enough in to diſtinguiſh the ſtones upon the beach. This iſland is very mountainous and ſteep; is

covered

covered with trees to the ſummit; and may be about four leagues in circumference. I imagine that the inhabitants of Tongataboo, and the other Friendly Iſlands, often land there in the ſummer ſeaſon to cut down trees, and probably to conſtruct their canoes; for they are in want of wood in the low iſlands, where they have preſerved no trees but thoſe which, like the cocoa palm, bear fruit fit for their ſubſiſtence. In running along the iſland we ſaw ſeveral ſlides or inclined planes, by which the trees cut upon the mountain's ſide roll down to the ſea ſhore; but there were neither huts, nor ground cleared away among the woods; nothing, in ſhort, that announced its being inhabited. While thus continuing our route towards the two little iſlands of Hoonga-tonga and Hoongá-hapaee, we ſhut in the iſland of Kao, with the middle of Tooſoa, ſo that the former appeared to be only the ſummit of the latter; and in this poſition we found its bearing to be north 27° eaſt. The iſland of Kao is about three times as high as the other, and reſembles the peak of a volcano: its baſe appeared to be leſs than two miles in diameter. We alſo obſerved on the north-eaſt point of the iſland of Tooſoa, on the ſide of the channel that ſeparates it from Kao, a country abſolutely burnt up as black as a coal, and entirely deſtitute of trees and verdure, which has probably been ravaged by a flood of lava. Towards noon we got ſight of the two iſlands of

Hoonga-

Hoonga-tonga and Hoonga-hapaee. They are laid down in a chart of the Friendly Iſlands, inſerted in *Cook's Third Voyage*; but that chart does not exhibit a very dangerous reef of rocks two leagues in extent, of which the direction is nearly north by weſt, and ſouth by eaſt. Its northerly point is five leagues north of Hoonga-hapaee, and its ſoutherly point three leagues north of Hoonga-tonga, forming with the two iſlands a ſtrait three leagues wide. We ran along it at a full league's diſtance to the weſtward, and perceived its breakers riſing mountain-high; but it is poſſible that in calmer weather it ſhews itſelf leſs, and is conſequently much more dangerous. The two ſmall iſlands of Hoonga-tonga and Hoonga-hapaee, are no better than two large uninhabitable rocks, high enough to be ſeen at the diſtance of fifteen leagues. Their form changes every moment, ſo that any view which it might have been poſſible to take would only have agreed with them in one particular point of ſight. They appeared to be of equal extent, and leſs than half a league each in circumference. They are ſeparated by a channel a league wide, lying in the direction of eaſt-north-eaſt and weſt-ſouth-weſt. Their poſition is ten leagues north of Tongataboo; but as that iſland is low, it is only to be ſeen at half the above diſtance. At ſix o'clock in the morning of the 31ſt of December, we perceived it from the maſt-head, nothing appearing at firſt but the

the tops of trees that ſeemed to grow in the water; but in proportion as we drew nearer we roſe the land, though only to the height of two or three toiſes. Soon after we made Van Diemen's point, and the ridge of breakers without it; the former, at noon, bearing eaſt, diſtant about two leagues. As the wind was northerly, I ſteered for the ſouth coaſt of the iſland, which is free from danger, and may be approached within three muſket ſhots. The ſea broke with fury all over the coaſt; but the ſurf was cloſe in ſhore, and beyond it we perceived the moſt beautiful orchards, the whole iſland appearing cultivated, and the trees ſkirting fields of the moſt delightful green. We were then, it is true, in the rainy ſeaſon; and notwithſtanding the charms of our preſent proſpect, it is more than probable, that during a part of the year, the moſt horrible drought muſt prevail in ſo low an iſland. Not a ſingle hill was to be ſeen; even the ſea in calm weather does not preſent a more level ſurface to the eye.

The huts of the natives were not collected in villages, but ſcattered over the fields, like the country-houſes in our beſt cultivated plains. Soon after ſeven or eight canoes were launched, and advanced towards our ſhips; but theſe iſlanders, being better cultivators than ſeamen, managed them awkwardly, and did not dare to approach our veſſels, though we were lying to, and though the water was very ſmooth. At eight or ten toiſes diſtance,

diſtance, they leaped overboard and ſwam to us, holding in each hand cocoa-nuts, which they exchanged with great honeſty for bits of iron, nails, and little hatchets. Their canoes differ in no reſpect from thoſe of the iſlands of Navigators, except that none of them have ſails, which it is probable that they would not know how to manage. The greateſt confidence ſoon took place between us: they came on board; we talked to them of Poulaho and Feenou, and had the air of being old acquaintance, who meet after abſence, and converſe about their friends. A young iſlander gave us to underſtand, that he was the ſon of Feenou, and this falſehood or truth, whichever it was, procured him ſeveral preſents: he uttered a cry of joy on receiving them, and ſought to make us underſtand by ſigns, that if we would go and anchor upon the coaſt, we ſhould there find proviſion in abundance, their canoes being too ſmall to bring them out into the open ſea: in effect they had neither fowls nor hogs with them, their whole cargo conſiſting of a few bananas and cocoa-nuts. As the ſmalleſt wave is ſufficient to overſet theſe ticklish veſſels, any animal would have been drowned before it could have been gotten on board. Theſe iſlanders were noiſy in their manners; but their features were not at all expreſſive of ferocity, and neither their ſize, nor the proportion of their limbs, nor the ſuppoſed ſtrength of their muſcles, was ſufficient to give

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us any alarm, even if they had been unacquainted with our weapons. Their phyſical conſtitution, though not inferior to ours, did not appear to have any advantage over that of our ſailors: at the ſame time their language, their manner of tatooing, and their dreſs, all announced their common origin with the inhabitants of the Iſlands of Navigators; and it is evident, that the difference that exiſts in the individual proportions of theſe people only proceeds from the aridity of the ſoil, and the other phyſical circumſtances of the territory and climate of the Friendly archipelago. Of the hundred and fifty iſlands which compoſe this archipelago, the greater number conſiſts only of uninhabited and uninhabitable rocks; and I ſhould not feel any heſitation in aſſerting, that the iſland of Oyolava alone exceeds in population, fertility, and real ſtrength, all theſe iſlands put together, in which the natives are obliged to procure their ſubſiſtence from the earth by the ſweat of their brow. It is, perhaps, to this neceſſity for agriculture, that they are indebted for the progreſs of civilization, and the invention of ſeveral arts, which make amends for their want of natural ſtrength, and protect them from the invaſion of their neighbours. We ſaw, however, no arms among them but patow-patows. Several that we bought did not weigh a third as much as thoſe which we had procured at Maouna, and which the

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natives of the Friendly Iſlands would have been utterly unable to wield.

The cuſtom of cutting off two joints of the little finger is as general among theſe people as at Cocoa and Traitors iſlands; while that mark of grief for the loſs of a parent or a friend is utterly unknown at the Navigators Iſlands. I know that captain Cook conſidered Cocoa and Traitors Iſlands as belonging to the Friendly archipelago; and this opinion he ſupported by the report of Poulaho, who was acquainted with the trade that captain Wallis had carried on in thoſe two iſlands, and who even poſſeſſed in his treaſury, before captain Cook's arrival, ſeveral bits of iron, proceeding from the exchanges made by the Dolphin frigate with the inhabitants of the Iſle of Traitors. I thought, on the contrary, that thoſe two iſlands were compriſed in the ten enumerated by the inhabitants of Maouna, becauſe I found them preciſely in the point of the compaſs indicated by them, and farther eaſt than captain Wallis had laid them down; and I was of opinion that they might form with Quirot's Iſland of the Handſome Nation, the complete group of the fineſt and largeſt archipelago of the South Sea; but I confeſs that the natives of Cocoa and Traitors iſlands have a much ſtronger reſemblance in ſtature and external forms to the inhabitants of the Friendly Iſlands, than to thoſe of the Iſles of Navigators,

gators, from which they are nearly equidiſtant. After having thus explained the motives of my opinion, I feel little reluctance in ſubſcribing upon all occaſions to that of captain Cook, who made ſo long a ſtay in the different iſlands of the South Sea.

All our intercourſe with the inhabitants of Tongataboo was confined to a ſingle viſit, and ſeldom is a viſit made at ſo immenſe a diſtance from home. We received from them only ſuch refreſhments as are given to neighbours in the country; but M. Dagelet had an opportunity of aſcertaining the rate of going of our time-keepers. The great number of obſervations made, as I have ſaid above, by captain Cook at Tongataboo, did not leave him any doubt as to the exact poſition of the Reſolution's obſervatory, and he thought he might make it in ſome ſort a firſt meridian, by adjuſting to it the relative poſitions of the whole Friendly archipelago, and even of the other iſlands that we had viſited in the Southern hemiſphere. The reſult of his obſervations, obtained by a great number of diſtances of the ſun and moon, differed leſs than ſeven miles from that of captain Cook: thus M. Dagelet, while admitting the longitudes of that celebrated navigator, followed alſo his own; and he convinced himſelf, that the compariſons eſtabliſhed upon determinate points might increaſe the degree of confidence given to the time-keepers, but were not

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neceſſary to their verification; a ſeries of diſtances from the ſun to the moon being perfectly ſatisfactory in that reſpect. From this conformity of our obſervations it may be ſafely concluded, that ſuppoſing we had had no knowledge of captain Cook's voyages, the archipelago of Navigators, and the cluſter of the Vavao Iſlands, would nevertheleſs have had geographical poſitions on the charts within five or ſix miles of thoſe they now occupy.

On the firſt of January, at the coming on of night, having loſt all hope of obtaining, while thus plying in the offing, a ſufficiency of proviſion even to compenſate our conſumption, I came to the reſolution of bearing away to the weſt-ſouth-weſt, and running to Botany Bay along a track which no navigator had as yet taken. It was no part of my plan to reconnoitre the Iſland of Pylſtaart, which was diſcovered by Taſman, and of which captain Cook had determined the poſition; but the wind having ſhifted from the north to the weſt-ſouth-weſt, forced me to make a ſtretch to the ſouthward; and in the morning of the 2d. I perceived that iſland, of which the greateſt width is a quarter of a league. It is very ſteep, has only a few trees on the north-eaſt coaſt, and can ſerve as a retreat for aquatic birds alone.

This little iſland, or rather this rock, bore weſt of us, at half paſt ten in the morning. Its latitude, obſerved at noon by M. Dagelet, was found to be

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22° 22′, that is, four miles north of the latitude aſſigned to it by captain Cook, who, having determined it by diſtant bearings, was neceſſarily liable to miſtake.

The calms we met with afforded us many opportunities of verifying and correcting our obſervations. For three whole days we remained in ſight of this rock. The ſun, which we had in the zenith, prolonged theſe calms, which are a thouſand times more tireſome to ſeamen than contrary winds. We waited with the greateſt impatience for a breeze from the ſouth-eaſt, which we hoped to meet with in theſe ſeas, in order to make our paſſage to New Holland. The wind had conſtantly blown from the weſtward ſince the 27th of December, never varying but from north-weſt to ſouth-weſt, whatever might be the ſtrength of the gale. Hence it appears, that the trade winds are very uncertain in theſe latitudes. They blew, however, from the eaſt, on the 6th of January, and varied to the north-eaſt, the weather growing very thick, and the ſea beginning to run very high. They continued in the ſame points with a great deal of rain, and a contracted horizon, till the 8th, when we had ſteady and very ſtrong breezes from the north-eaſt to the ſouth-eaſt, the weather being dry, and the ſea exceedingly rough. As we had paſſed the latitude of all the iſlands, the wind had now reſumed its regular courſe, which had been entirely interrupted

from the line to 26° ſouth: the temperature of the air was alſo much altered, and the thermometer* had fallen ſix degrees, either becauſe we had gotten beyond the ſun; or, what is more probable, becauſe the ſtrong eaſterly breezes and a gray ſky weakened its influence; for it was only four degrees from our zenith, and its rays had conſequently very little obliquity. The 13th we got ſight of Norfolk Iſland, and of the two iſlots at its ſouth point. The ſea was very high, and had ſo long continued ſo, that I had little hope of meeting with ſhelter on the north-eaſt coaſt. On approaching it, however, I found ſmoother water, and determined to let go the anchor at a mile from the land, in twenty-four fathoms water, over a bottom of hard ſand, mixed with a little coral. I had no other object than to obtain a knowledge of the ſoil and productions of this iſland by means of our naturaliſts and botaniſts, who, ſince our departure from Kamtſchatka, had had very few opportunities of entering any new obſervations in their journals. We however ſaw the ſea break with fury round the iſland; but I flattered myſelf, that our boats would find a ſhelter behind the large rocks that ſkirt the coaſt. As we had learned, however, to our coſt, never to depart from the rules of prudence, I charged M. de Clonard,

* The thermometer uſed by the French is always that of Reaumur. T.

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a poſt captain, and the ſecond officer in the expedition, with the command of four ſmall boats diſpatched by the frigates, and I ſtrictly enjoined him not to riſk a landing, under any pretence whatever, ſhould there be the ſmalleſt riſk of our pinnaces being overſet by the ſurf. His punctuality and prudence left me without fear or apprehenſion. No one indeed could better deſerve my confidence than that officer, whom I deſtined to the command of the Aſtrolabe, as ſoon as we ſhould arrive at Botany Bay. Our frigates were anchored abreaſt of two points ſituated at the northern extremity of the north-eaſt coaſt of the iſland, and oppoſite to the place where we ſuppoſed that captain Cook had debarked. Our boats ſtood towards this kind of inlet; but they found a ſurf breaking upon the rocks with a fury which rendered all approach impoſſible. They coaſted along ſhore within half muſket ſhot, pulling up to the ſouth-eaſt, and went half a league in that direction without finding a ſingle ſpot where it was poſſible to land. They perceived that the iſland was ſurrounded by a wall formed of the lava which had flowed from the ſummit of the mountain, and which, having cooled in its deſcent, had formed in a number of places a kind of roof projecting ſeveral feet over the coaſt of the iſland. Even if landing had been practicable, it would ſtill have been impoſſible to penetrate into the interior, unleſs by ſtemming

for the ſpace of fifteen or twenty toiſes the rapid courſe of ſome torrents that had formed ravines. Beyond theſe natural barriers, the iſland was covered with pines, and carpeted with the moſt beautiful verdure. We ſhould probably have found there ſeveral culinary plants; and that hope added ſtill to our deſire of viſiting an iſland, where captain Cook had debarked with the greateſt facility. It is true, that he was there in fine weather that had laſted ſeveral days, while we had conſtantly navigated in ſo high a ſea, that for eight days we had not dared to open our ports or cabin windows. From the ſhip I followed with my teleſcope the motions of the boats; and ſeeing that at the fall of night they had not found a convenient place of debarkation, I made a ſignal to recall them, and ſoon after gave orders to get under way. I ſhould perhaps have loſt a great deal of time in waiting for a more favourable moment, and the ſurvey of the iſland was not worth ſuch a ſacrifice. While I was preparing to make ſail, a ſignal from the Aſtrolabe, indicating that ſhe was on fire, threw me into a ſtate of the utmoſt anxiety. I immediately diſpatched a boat in all haſte to her aſſiſtance, but by the time it had gotten half way, another ſignal informed me, that the fire was extinguiſhed; and ſhortly after M. de Monti hailed me with a ſpeaking trumpet, and told me, that a box of acids and other chemical liquors, belonging to father Receveur, and depoſited under the quarter

ter deck, had taken fire of itſelf, and ſpread ſo thick a ſmoke below, that it had been difficult to diſcover whence it proceeded. At length means were found to throw the box overboard, and the accident was attended with no farther conſequences. It is probable, that a bottle of acid, having burſt in the inſide of the box, occaſioned the fire, which afterwards extended itſelf to bottles of ſpirits of wine either broken or ill-corked. I now gave myſelf credit for having, at the very beginning of the voyage, ordered a ſimilar box, belonging to the abbé Mongès, to be placed in the open air upon the forecaſtle of the ſhip, where danger from fire was not much to be apprehended.

Norfolk iſland, though very ſteep, is ſcarcely more than ſeventy or eighty toiſes above the level of the ſea. The pines, with which it is covered, are probably of the ſame ſpecies as thoſe of New Caledonia, or New Zealand. Captain Cook ſays, that he met with a great many cabbage trees; and the hope of procuring ſome contributed not a little to our deſire of landing. It is probable, that the palm, which bears theſe cabbages, is very ſmall, for we could not perceive a ſingle tree of that ſpecies. As this iſland is not inhabited, it is covered with ſea fowl, particularly tropic birds, none of which are without their long red feathers. There were alſo a great many boobies and gulls, but not a ſingle man-of-war bird. A bank of ſand, over

which there are twenty or thirty fathoms water, extends three or four leagues to the northward and eaſtward of the iſland, and perhaps all round it; but we did not ſound on the weſtern ſide. While we lay at anchor we caught ſome red fiſh upon the bank, of the kind called *capitaine* at the iſle of France, or *ſarde*, which afforded us an excellent repaſt. At eight o'clock in the evening we were under way. I firſt ſtood weſt-north-weſt, and then bore away by degrees to ſouth-weſt by weſt, under eaſy ſail, and ſounding continually upon the bank, where it was poſſible we might meet with ſhoals; but the bottom was, on the contrary, exceedingly even, and the water deepened foot by foot in proportion as we left the land. At eleven o'clock in the evening we got no ground with a line of ſixty fathoms, being then ten miles weſt-north-weſt of the moſt northerly point of Norfolk iſland. The wind had ſettled at eaſt-ſouth-eaſt, with rather thick ſqualls; but in the intervals between them the weather was very clear. At day-break I crowded ſail towards Botany Bay, which was now at no more than three hundred leagues diſtance. The 14th, in the evening, after the ſun was beneath the horizon, I made the ſignal to bring to, and to ſound with two hundred fathoms of line. The flat bank of Norfolk iſland had made me imagine that bottom might be found all the way to New Holland; but this conjecture proved falſe, and I continued my

courſe, with an error the leſs in my mind; for I had been ſtrongly perſuaded of the truth of my opinion. The wind from eaſt-ſouth-eaſt to north-eaſt continued to blow till we came within ſight of New Holland. We made a great deal of way by day and very little by night, becauſe no navigator had preceded us in the track along which we were running.

On the 17th, being in 31° 28′ ſouth latitude, and 159° 15′ eaſt longitude, we were ſurrounded by innumerable gulls, which made us ſuſpect that we were paſſing near ſome iſland or rock; and ſeveral bets were laid on the diſcovery of new land before our arrival at Botany Bay, from which we were only a hundred and eighty leagues diſtant: theſe birds followed us till within eighty leagues of New Holland, and it is probable enough, that we had left ſome iſlot or rock behind us, which ſerves them as an aſylum, for they are much leſs numerous near an inhabited country. From Norfolk iſland, till we got ſight of Botany Bay, we ſounded every evening, with two hundred fathoms of line, and did not find bottom till within eight leagues of the coaſt in ninety fathoms water. We got ſight of it on the 23d of January. The land is of very moderate elevation, and can hardly be ſeen at more than twelve leagues diſtance. The wind then became very variable, and, like captain Cook, we met with currents which drifted us every day fifteen miles to

the ſouthward of our reckoning; ſo that we paſſed the whole day of the 24th in plying to windward in ſight of Botany Bay, without being able to double Point Solander, which bore north diſtant one league. The wind blew ſtrong from that quarter, and our ſhips ſailed too badly to be able to overcome the force of both wind and currents. We had this day a ſight entirely new to us ſince our departure from Manilla. It was an Engliſh fleet at anchor in Botany Bay, of which we could diſtinguiſh the colours and pendants.

Europeans are all fellow-countrymen at ſuch a diſtance from home, and we felt the greateſt impatience to get into an anchorage; but the weather was ſo hazy the following day, that it was impoſſible to diſtinguiſh the land; and we did not get in till the 26th, at nine in the morning, when I let go the anchor at a mile from the north coaſt in ſeven fathoms water, over a bottom of fine grey ſand, abreaſt of the ſecond bay. At the moment I was at the mouth of the channel, an Engliſh lieutenant and a midſhipman were ſent on board my ſhip by captain Hunter, commander of the Engliſh frigate the Sirius. They offered me in his name all the ſervices in his power, adding, however, that as he was on the point of getting under way, in order to run to the northward, circumſtances would not permit him to furniſh us either with proviſion, ammunition, or ſails; ſo that his ſervices were confined to wiſhes

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for the farther ſucceſs of our voyage. I ſent an officer to return my thanks to captain Hunter, who was already apeak, with his top-ſails hoiſted. I intimated to him that my wants did not extend beyond wood and water, of which we ſhould find plenty in the bay; and that I was ſenſible that ſhips deſtined to eſtabliſh a colony at ſo great a diſtance from Europe could afford no ſuccour to navigators. We learned from the lieutenant, that the Engliſh fleet was commanded by commodore Phillips, who had gotten under way the evening before in the Spy ſloop, accompanied by four tranſports, in order to ſeek farther to the northward for a more convenient place for his ſettlement. The Engliſh lieutenant appeared to make a great myſtery of commodore Phillips's plan, and we did not take the liberty of aſking him any queſtion on the ſubject; but we could have no doubt of the projected eſtabliſhment being very near Botany Bay; for ſeveral boats and launches were under ſail in their way thither; and the paſſage muſt needs have been ſhort indeed, to render it unneceſſary to hoiſt them into the ſhips. Soon after the crew of the Engliſh boat, who were leſs cautious than their officers, told our ſailors, that they were only going to Port Jackſon, ſixteen miles to the north of Cape Banks, where commodore Phillips had himſelf found out a very good harbour, running in ten miles to the ſouth-weſt, and allowing veſſels to anchor within piſtol-ſhot of the land, in water as ſmooth

as that of a baſin. We had, in the ſequel, but too many opportunities of hearing news of the Engliſh ſettlement from deſerters, to whom we were indebted for a great deal of trouble and embarraſſment *.

* Here ends the journal of La Pérouſe. I will not repeat what I have ſaid in the preliminary diſcourſe concerning the fate of that illuſtrious though unfortunate navigator. I think I have completely refuted all the abſurd aſſertions relative to the probability of his exiſtence. I refer the reader to that diſcourſe; and I requeſt him to read in the ſubſequent part of this volume, the laſt letter which he wrote from Botany Bay to the miniſter of marine. He there gives an account of the route he means to take previous to his arrival at the Iſle of France; and from the ſimple chain of reaſoning which it preſents to ſeamen, it no longer leaves a hope of his return. *(Fr. Ed.)*

EXTRACT OF A JOURNAL TO THE PEAK OF TENERIFFE,

BY M. M. DE LAMANON AND MONGES,

On the 24th of Auguſt 1785;

And the reſults of ſome chemical experiments made on the ſummit of the mountain; together with a deſcription of ſome new varieties of volcanic Schörls.

THE crater of the Peak is a true *ſolfatara*, perfectly analogous to thoſe of Italy; its length is about fifty toiſes, its breadth forty, and it riſes abruptly from weſt to eaſt.

On the ſides of the crater, eſpecially towards the lower part, are ſeveral vents or chimneys, from which ſteam and ſulphureous acid are continually exhaling: the heat of theſe vapours is ſo great as to raiſe the thermometer from nine to thirty-four degrees. The inſide of the crater is covered with yellow, red, and white clay, and blocks of partly decompoſed lava, under which are found beautiful cryſtals of ſulphur; their figure is that of a rhomboidal octaedron, ſome of which are nearly an inch high,

high, and are perhaps the fineſt ſpecimens of native volcanic ſulphur yet known.

The ſteam ariſing from the vents appeared, from the taſte and ſome experiments, to be pure water.

The elevation of the Peak above the ſea being about 1900 toiſes, induced me to make on its ſummit ſeveral chemical experiments, in order to compare their reſults with what takes place in our laboratories: it will be ſufficient to give the reſults without encumbering the reader with the detail.

The volatilization of liquids and the conſequent production of cold was very conſiderable, a minute was ſufficient for the evaporation of a full doſe of ether.

The action of acids on metals, earths, and alkalis, was ſlow, and the bubbles that eſcaped during the effervescence were of a much greater ſize than uſual. The production of vitriols was attended with ſome ſingular phenomena; that of iron became inſtantly of a beautiful violet colour, and that of copper was ſuddenly precipitated of a bright blue.

I examined the humidity of the atmoſphere by means of the hygrometer, pure alkali, and ſulphuric acid, and conclude, that during the abſence of clouds the air is very dry, for at the end of three hours the ſulphuric acid had not undergone any change of colour, or gained any increaſe of weight: the fixed alkali remained dry, except on the edges of the veſſel, where it appeared to be a little damp; the

the index of the hygrometer pointed to 64 degrees, but we could not fix it with perfect exactneſs on account of the violence of the wind.

The ſmell and ſtrength of liquids appeared to be not in the leaſt impaired by this height, contrary to the extraordinary accounts of ſome even modern travellers: volatile alkali, ether, and ſpirit of wine, poſſeſſed their uſual pungency. The fuming liquor of Boyle was the only one that ſuffered any perceptible loſs of ſtrength; its evaporation, however, was not retarded, for in thirty ſeconds a ſmall quantity that I poured out had diſappeared, leaving behind only the ſulphur, which gave a reddiſh tinge to the ſides and bottom of the veſſel. On the addition of a little ſulphuric acid to this liquor it detonated briſkly, and the vapour that aroſe had a ſenſible degree of heat.

I attempted to produce the volatile alkali by decompoſing ſal ammoniac by fixed alcali, but its effect was ſlow, and hardly to be perceived, whereas on the ſea-ſhore an equal quantity of materials produced it readily and in great abundance.

Deſirous of aſcertaining the nature of the vapours which were riſing from the crater, particularly, whether they contained any inflammable air, fixed air, or marine acid, I made the following experiments. Having expoſed ſome nitrous ſolution of ſilver on the edge of one of the vents, and ſuffering it to remain above an hour amid the riſing vapours,

pours, I perceived no alteration in it, which clearly ſhowed the abſence of marine acid: I then dropped in a little marine acid, and there enſued an immediate precipitation of corneous ſilver; but, inſtead of being white, as is commonly the caſe, it was of a fine dark violet colour, which preſently became gray, aſſuming the form of little ſcaly cryſtals diſtinguiſhable by the naked eye, ſuch as M. Sage obſerved. (Vid. *Min. docim.*) From ſome experiments that I have made on the precipitation of corneous ſilver in inflammable air, I am inclined to attribute its change of colour to the preſence of that ſubſtance. Lime water, after an expoſure of three hours on the ſide of the crater, in the neighbourhood of one of the vents, exhibited no pellicle, but merely a few floating detached threads; hence proving, that there is not only no exhalation of fixed air from the crater, but that the quantity of it contained in this elevated expoſure is not equal to that of the lower atmoſphere; inflammable and ſulphureous vapours being the only ones that abound here.

The electricity of the atmoſphere was pretty conſiderable, for the electrometer of M. Sauſſure, held in the hand about five feet from the ſurface, indicated three degrees of poſitive electricity, whereas on the ground it ſhowed only one and a half.

The violence of the wind hindered me from making any experiments on boiling water upon the crater itſelf,

itſelf, but at the icy fountain it continued in a ſtate of ebullition at 71° of Reaumur's thermometer, the mercury in the barometer being 19 inches, 1 line.

I met with ſome new varieties of volcanic ſchörls.

1. A triple cryſtal belonging to the claſs of octaedral unequal-ſided priſms.
2. Black ſchörl in octaedral unequal-ſided priſms, terminated by oppoſite triedral ſummits, the plans of which form two large irregular heptaedrons and a ſmall ſcalene triangle produced by the truncature of the upper angle.
3. A compreſſed hexaedral priſm, the two largeſt faces oppoſite, terminated at one end by an obtuſe tetraedral pyramid, with trapezoidal plans; and at the other by a hexaedral pyramid compoſed of ſix trapezoidal plans; two of which, very ſmall, are formed on the intervals of the two upper ſides of the large hexagon of the priſm.
4. Terminated at one end like the ſummit of the preceding cryſtal, and at the other by a diedral pyramid, all the edges of which are bevelled.
5. Terminated at one end by a tetraedral ſummit, and at the other by a heptaedral, compoſed of an irregular pentagon in the centre, five trapezoids on the ſides, and a ſixth on one of the angles.
6. Terminated at one end by a pentaedral ſummit, compoſed

compoſed of four pentagons ſurrounding a truncated rhomb; and at the other by a pentaedral ſummit differing from the firſt only in a triangular truncature of the edge of two of the trapezoids.

7. Black ſchörl with a hexaedral priſm, terminated at one end by a heptaedral ſummit, compoſed of two irregular hexagons, two irregular pentagons, and three trapezoids; and at the other end by a tetraedral ſummit, the truncatures of which form; 1. Two great trapezoids and one rhomboid; 2. Two ſmall regular trapezoids; and between the great and the ſmall trapezoids three truncatures, the firſt hexagonal, the ſecond pentagonal, and the third a ſcalene.

EULOGY OF LAMANON,

BY

CITIZEN PONCE.

Read at the public ſitting of the free ſociety of ſcience, letters, and arts of Paris, aſſembled at the Louvre, the 9th Vendemiaire, 6th year.

When an illuſtrious man has arrived at the termination of a long and brilliant career, dignified by heroic actions or ſublime productions, the honours paid

paid to his memory ought to be conſidered rather as the tribute of our gratitude, than the unavailing expreſſion of our regret. His taſk has been accompliſhed, the fruits of his diſcoveries remain to us, the light that he has ſtruck out continues to ſpread, and an exiſtence prolonged to the period when age and enfeebled faculties will no longer admit of the brilliant conceptions of genius would add nothing to his glory, or the benefit of the public. But when a young man, endowed with rare virtues and early talents, is ſnatched from life by the conſequences of his devotedneſs to ſcience, ſuch a loſs muſt neceſſarily excite in us the moſt lively regret, ſince the hopes of his future ſervices are buried with him in the grave.

Robert Paul Lamanon, of the academy at Turin, correſpondent of the academy of ſciences at Paris, and member of the Muſeum in the ſame city, was born at Salon in Provence, in 1752, of an old and reſpectable family. I ſhall paſs over his education, for if that of a common man ought to be good; the man of genius will feel it his duty, and knows how to form for himſelf a new one. Being the youngeſt of his family, and in conſequence condemned by cuſtom to the indolent life of an eccleſiaſtic, Lamanon came to finiſh his preparatory ſtudies at Paris. But he already felt for the ſtudy of ſcience, that ſublime branch of it, eſpecially, which includes a knowledge of all the productions of nature, that innate

predilection, which is the ſureſt earneſt of ſucceſs. And by the death of his father and elder brother having acquired the right of directing his own future exertions, he haſtened to quit a profeſſion, towards which he felt no partiality.

A prelate, then in high favour at court, hearing of Lamanon's intention of quitting his office of canon, offered him a conſiderable ſum, to induce him to reſign in favour of one of his dependents. The chapter of Arles, replied our young eccleſiaſtic, did not ſell me my benefice, I ſhall, therefore, reſtore it in the ſame manner that I received it. Being endowed by nature with a ſenſe of juſtice, which the prejudices of his education were never able to alter, he renounced by a particular act the barbarous advantage that the law allowed him, and refuſed to accept his paternal inheritance otherwiſe than as an equal ſharer with his brothers and ſiſters.

Thus liberated from the trammels of his former profeſſion, Lamanon applied himſelf with uncommon ardour to ſtudy. Eager to raiſe the awful veil, that conceals from our eyes the ſecrets of nature; perſuaded, that even the greateſt genius only amuſes itſelf with falſe ſyſtems in the ſilence of a cabinet; convinced of the neceſſity of much and various obſervation, and of ſurpriſing Nature, as it were, in the very fact, in order to penetrate into the ſublimity of her operations; our young philoſopher, full of theſe ideas, travelled through Provence, Dauphine, and

ſcaled

ſcaled the Alps and Pyrenees. At the ſight of theſe vaſt natural laboratories the bent of his mind burſt forth inſtantaneouſly: he climbed to the ſummit of rocks, and explored the abyſs of caverns, weighed the air, analyſed ſpecimens, and in his ardent fancy having attained the ſecrets of creation, he formed a new ſyſtem of the world. On his return home, he applied with additional intereſt to the ſtudy of meteorology, mineralogy, natural philoſophy, and the other branches of the hiſtory of nature.

Deſirous of availing himſelf of the luminaries of ſcience at the capital, Lamanon came to Paris*. Hence he made an expedition to England. During the paſſage, though much incommoded by ſea-ſickneſs, and in imminent hazard of being overwhelmed by the tumbling waves of a very ſtormy ſea, he cauſed himſelf to be tied to the main-maſt, in order to contemplate at leiſure ſo grand and fearful a ſpec-

* The inhabitants of the commune of Salon, having loſt a cauſe againſt their lord, unanimouſly elected Lamanon, with whoſe integrity and abilities they were well acquainted, to go and ſolicit of the council the repeal of an unjuſt decree, that had been obtained by partiality. The reply of the young philoſopher on this occaſion is an additional proof of his uncommon diſintereſtedneſs. As I intend, ſaid he, to go to Paris on buſineſs of my own, I cannot think of accepting your offer of 24 livres daily pay: a twelfth of this ſum will cover the extraordinary expences of the journies, that I ſhall be obliged to make to Verſailles on your account. He had the ſatisfaction of complete ſucceſs in the buſineſs thus undertaken.

tacle. The burſts of thunder, the howling of the wind, the brilliancy of the lightning, the glancing of the ſpray which covered him every moment, theſe objects, ſo terrible to an ordinary man, threw him into a kind of mental intoxication, and he has often told me ſince, that this day was the moſt exquiſite of his whole life.

Convinced that the friendſhip of an eminent man elevates the ſoul, excites generous emulation, and becomes an additional ſtimulus to one whoſe delight is ſtudy, and whoſe moſt preſſing want is an object on which to place his affection, Lamanon anxiouſly endeavoured to merit the regard of Condorcet, ſo well known by his talents and his misfortunes, who was implacably hunted down by a ſect inimical to order and the laws, for having wiſhed to lay the foundation of liberty on the ruins of anarchy. This academician, who already foreſaw what he might one day arrive at, received him with diſtinction, and at length admitted him to his moſt intimate friendſhip.

During the three ſucceſſive years that Lamanon ſpent at Paris, he followed with care the track of thoſe learned ſocieties, of which he had been elected a member. He became at this period, together with count de Gebelin, and ſome other philoſophers and artiſts, one of the founders of the Muſeum, the greater part of the members of which are now reunited in the open ſociety of ſciences, letters, and arts at Paris.

Paris. Among the different papers of his that were read at various ſittings of theſe ſocieties, allow me to mention a notice of Adam de Crapone, one of the moſt ſkilful hydraulic engineers that has ever lived, to whom we owe the conſtruction of ſeveral canals that fertilize our ſouthern departments: a memoir on the Cretins, a ſpecies of Goitre to which the mountaineers of Savoy are ſubject; this paper abounds with profound obſervations and judicious reflections: a memoir on the theory of the winds, eſpecially on the *miſtral*, the cauſe of ſo much damage in the provinces of the ſouth; this piece is one of the beſt that has appeared on the ſubject. We may alſo mention a very luminous treatiſe on the alteration in the courſe of rivers, particularly the Rhone; and laſtly, another on an enormous bone belonging to ſome cetaceous fiſh, that was dug up at Paris in laying the foundations of a houſe in the *rue Dauphine*.

Having reſolved again to reviſit Switzerland and Italy, Lamanon firſt went to Turin, where he allied himſelf to the learned of that country. During his ſtay here, the brilliant novelty diſcovered by Mongolfier, which may perhaps be looked upon as one of thoſe phenomena that precede great events, was occupying the attention of all the philoſophers of Europe. Our lamented friend, deſirous of making ſome experiments of this kind himſelf, aſcended in a balloon from the city of Turin; but not perceiving

in this diſcovery, which had at firſt highly intereſted him, an object of public utility; not foreſeeing, that one day, on the plains of Fleurus, it would be the cauſe of rallying and eſtabliſhing victory under the ſtandards of France, he returned to his favourite occupations. Purſuing his route from Piedmont, he viſited Italy, and returned by Switzerland, where he explored the Alps and aſcended the ſummit of Mont Blanc: thence returning, loaden with the ſpoils of the countries which he had traverſed, to Provence, he employed himſelf in the arrangement of the intereſting fruits of his journey.

I ſhall mention an example of the ſcrupulous exactneſs of his obſervations. Being convinced, that the plain of Crau, divided by the channel of the Durance, had formerly been a lake, he wiſhed to be abſolutely aſſured of it. For this purpoſe he collected a ſpecimen of each of the ſtones that are to be found in this vaſt plain; the number of theſe he found to amount to nineteen, then tracing the courſe of the river towards its head, near the frontiers of Savoy, he obſerved, that above each junction of the tributary ſtreams with the Durance, the variety of pebbles diminiſhed. Afterwards aſcending the current of each of theſe ſmaller ſtreams, he diſcovered on their banks the original rock of every pebble that overſpreads the plain of Crau; thus inconteſtably proving, that this plain was anciently a lake formed by the waters of the Durance, and the

ſtreams

ſtreams that fall into it. If all philoſophers would conduct their examinations with equal preciſion, certain hypotheſes, more brilliant than ſolid, would not find ſo many admirers: the charm of imagination, and the graces of ſtyle, would not ſo often encroach upon the impreſcriptible rights of nature and truth *.

It was at the time when Lamanon was preparing for the preſs his great work on the *Theory of the Earth*, that government conceived the vaſt project of completing the diſcoveries of captain Cook: the academy of ſciences was entruſted with the care of ſelecting men capable of rectifying our notions of the ſouthern hemiſphere, of improving hydrography, and advancing the progreſs of natural hiſtory. Condorcet, not knowing any one better qualified for this laſt department than Lamanon, wrote him an invitation to ſhare the danger and glory of this great enterprize. He accepted with eager tranſport a propoſal, that fulfilled his higheſt expectations, haſtened to Paris, refuſed in a conference with the miniſter the ſalary that was offered, took a haſty leave of his friends, and departed for Breſt.

On the 1ſt of Auguſt, 1785, the armament ſet

* During a fever which had already continued two months, Lamanon was informed, that a ſubterraneous ſound was heard at Malherbes, ſixteen leagues from Paris; eluding the vigilance of his friends, he haſtened thither, and returned at the end of three days, bringing with him thirty pounds weight of ſtones. He had gone thirty-two leagues on foot, and had entirely gotten rid of his fever.

ſail under the orders of an experienced commander, whoſe patriotiſm and ſcientific zeal were equal to his courage and good ſenſe, and who had already merited the public confidence. The philoſophers of all Europe were in expectation of thoſe uſeful diſcoveries, the probable fruit of the zeal and talents employed in the expedition. The beginning of the voyage was proſperous. After various delays and a multitude of obſervations, the two veſſels arrived at the iſland of Maouna, one of the ſouthern Archipelago. The impatient Lamanon, eager to aſſure himſelf of the truth of the publiſhed accounts of that country, debarked with Langle, the ſecond in command. At the moment of their return, the natives, in hopes of booty, which had been excited by the number of preſents that they had received, ſeized upon the boats, and attacked the party. The French were obliged to have recourſe to arms for ſelf-defence, and a deſperate combat enſued. Lamanon, Langle, and ten of the two boats crews, fell a ſacrifice to the fury of theſe barbarians.

Thus fell Lamanon, having acquired by his generous devotedneſs a ſacred claim on the gratitude of the public. He was the only one of this celebrated though unfortunate expedition, who refuſed to avail himſelf of the national munificence; and he fell a victim to his love of ſcience by a peculiar danger, to which no others of his learned aſſociates were expoſed.

Lamanon

Lamanon ſeemed born to bring about a revolution in ſcience: the depth of his ideas, the energy of his character, the ſagacity of his mind, united to that lively curioſity, that can draw inſtruction out of any thing, and leaves nothing unexplored, would have led him to the moſt valuable diſcoveries. In perſon he was tall, and to great vivacity and expreſſion of feature added prodigious ſtrength and activity; in a word, nature formed him with ſuch care, as if ſhe had intended him for one of thoſe few, who are deſtined to great exploits. His ſtyle was nervous, often poetical, without loſing ſight of propriety, and the language of ſentiment might frequently be diſcovered in the midſt of ſtrong and ſtriking expreſſions; and if he wanted the exquiſitely dazzling poliſh of diction, he was eminently gifted with the preciſion of logical reaſoning, which commands attention and enforces perſuaſion.

Notwithſtanding his conſtant employment, and the moderateneſs of his fortune, benevolence, the virtue of good and ſenſible men, had aſſumed that aſcendency in his mind, which the love of pleaſure has in common men, and he found both opportunities and means of largely ſatisfying it: he was by no means inſenſible to the charms of ſociety, though his ardour for ſtudy left him but little time to ſpend in this manner. So great was his ingenuouſneſs, that an amiable woman having one day aſked him whether he had no intimate female acquaintance, he replied, that he had always been infinitely deſirous of

ſuch

ſuch a connexion, but had hitherto found no opportunity.

At the time of his engaging in the voyage round the world, it was that vivid and innate love of liberty, which always formed the baſis of his character, that cauſed him to refuſe the pecuniary compenſation allowed to the other ſcientific men in the expedition; "If I do not feel ſatisfied," ſaid he, "on board "the veſſel, if my inclination or curioſity lead me to "wiſh to quit the ſhip, I ſhould be unhappy if any "power in the world had acquired the right of pre-"venting me." Death has defeated the hopes of friendſhip, and has cut ſhort the days of our friend * in a foreign and barbarous land, and even deprived us of the melancholy ſatisfaction of ſprinkling his aſhes with our tears, and ſtrewing flowers on his grave.

* I alſo in my early youth was acquainted with Lamanon, at count de Gebelin's, and in ſome literary ſocieties. His modeſty, ſimplicity, and ſevere probity, had gained him the tender attachment of all his friends. Mongés the younger, a mineralogiſt, who alſo periſhed in the ſame fatal expedition; la Metherie, author of the *Theory of the Earth*, and editor of the *Journal de Phyſique*; citizen Ponce, a diſtinguiſhed engraver and author of this eulogy; and Lewis Boſch, an active naturaliſt, at preſent in North America: theſe were his moſt intimate aſſociates and friends: the latter, ſince the death of Lamanon, has placed the buſt of his friend covered with black crape in a diſtinguiſhed ſituation in his cabinet. (Note by citizen Millin.)

CHAPTER

CHAPTER XXVII.

Diſſertation on the inhabitants of Eaſter Iſland and Mowée; by M. Rollin, M. D. Surgeon in ordinary of the Navy, and of the Frigate Bouſſole, commanded by M. de la Pérouſe, during his voyage round the world.

THE ſhortneſs of our ſtay at theſe iſlands having with difficulty allowed me to paſs a few hours on ſhore, it was not poſſible to make inquiries with all the accuracy that might be wiſhed, and to an extent ſufficient to ſatisfy the inſtructions of the ſociety of medicine. I muſt therefore confine myſelf, in the courſe of this memoir, to the correction of errors that have crept into the accounts of former navigators, and to a general ſketch of the natives of theſe iſles, and the common diſeaſes to which they are ſubject.

On the 9th of April, 1786, we anchored at Eaſter Iſland, ſituate in 27° 9′ ſouth latitude, and 111° 55′ 30″ weſt longitude.

This iſland has by no means the barren and diſguſting appearance aſcribed to it by navigators; it is indeed nearly deſtitute of trees, but its ſhore and the vallies offer to the eye of the ſeaman at leaſt a very pleaſing covering of verdure. The ſize and excellence

cellence of its potatoes, yams, and ſugar-canes, announce the fertility of the ſoil.

Errors as great have been entertained concerning its inhabitants; we do not find either the giants of Roggewein, or the half-ſtarved pining wretches deſcribed by a modern navigator, who has characterized them by a miſery that has no exiſtence. Far from finding men worn down by penury, and a ſmall proportion of women, who have with difficulty eſcaped being buried under the ruins of a ſuppoſed revolution in that part of the world; I found, on the contrary, a conſiderable population, more liberally endowed with grace and beauty, than any which I afterwards met with; and a ſoil which, with very little trouble, furniſhed excellent proviſion beyond the ſupply of their wants; though freſh water was difficult to be met with, and of a very indifferent quality.

Theſe iſlanders are a ſtout, handſome, well made race of people, about five feet nine inches high. The colour of the face is not remarkably different from that of Europeans. They have but little hair on the chin and the reſt of the body, except on the parts of ſex, and beneath the armpits. The colour of the ſkin is tawny, and the hair black; ſometimes, however, it occurs of a lighter ſhade. They appear in general to enjoy good health even in advanced age. They are accuſtomed to paint and tattoo the ſkin, and bore the ears, through which they inſert a ſugar cane leaf rolled up in a ſpiral form, ſo as at length

length to cauſe the lobe of the ear to reſt on the ſhoulders; a practice which, among the men at leaſt, is eſteemed a great beauty.

The women to a regular ſhape unite much grace of form; they have an agreeable oval face, and great mildneſs and intelligence in their features; they only want a mixture of the roſe in their complexions to make them handſome, according to European ideas of beauty: their fine hair, their rounded limbs, their engaging appearance, are well calculated to inſpire ſentiments, which they feel without being under the neceſſity of concealment.

Notwithſtanding theſe intereſting qualities, the men appear to entertain no jealous ſentiments; on the contrary, they ſought for opportunities of ſelling their favours. Theſe people are circumciſed, and ſeem to live in pure anarchy, without any chief. Both men and women are almoſt naked, no part of the body except the parts of ſex being concealed; ſome of them indeed wear a piece of cloth round their ſhoulders or hips, which reaches as low as their mid-thigh.

I know not what are their ideas among themſelves of the ſacredneſs of property, but their conduct towards us evinces the little regard which they have for that of ſtrangers; they took ſuch a liking to our hats, that in a very few hours they robbed us of them, and then laughed at us like miſchievous ſchool-boys.

Theſe

Theſe people are not without induſtry; their cottages are of a good ſize and neatly built; they are conſtructed of frame-work filled up with reeds; their ſhape is that of a reverſed cradle, being about fifty feet long, twelve wide, and twelve high in the centre. There are ſeveral doors on the ſides, the wideſt of which does not exceed three feet. The inſide offers nothing remarkable, containing only ſome mats which they ſpread on the ground by way of beds, and a few other houſehold utenſils. Their cloth is made of the paper mulberry; it is, however, by no means common, on account of the ſcarcity of theſe trees, though they appear to be cultivated with ſome care. They make alſo hats and baſkets of ruſhes, and carve in wood tolerably well. Their food conſiſts of potatoes, bananas, yams, ſugar canes, fiſh, and a kind of ſea weed, or fucus, which they find in plenty on the ſhore.

Fowls, though in ſmall number, conſtitute their only domeſtic animals, and rats are the only wild quadrupeds on the iſland. There are but a few ſea birds, and not many fiſh on the coaſt.

In the eaſtern part of the iſland is a large crater, round which, on the ſea ſhore, are ſeveral rude ſtatues, or rather buſts, with only the eyes, noſe, mouth, and ears, coarſely executed. At the foot of theſe ſtatues are thoſe myſterious caverns mentioned by captain Cook, which ſerve as vaults in which the dead

dead of each family are depoſited. We inſpected them without the ſmalleſt oppoſition from the natives.

La Pérouſe, in addition to the preſents that he had already made to theſe iſlanders, was deſirous of giving them freſh proofs of his kindneſs, and of contributing eſſentially and laſtingly to their welfare; he therefore left on their iſland two ewes, a ſhe-goat, and ſow, with a male of each ſpecies, and ſowed various kinds of pulſe, as well as peach, plum, and cherry ſtones, and pips of oranges and lemons.

If the future conduct of the natives do not render ineffectual theſe valuable gifts, this celebrated navigator will enjoy the glory of having materially conſulted their welfare, by peopling their iſland with animals and vegetables fit for food, and the ſupply of their other moſt urgent wants, and of having aſſured to ſucceeding navigators every kind of refreſhment.

Theſe benevolent intentions being put in execution, we got under way, and directed our courſe towards the Sandwich iſlands. As ſoon as we came in ſight of Mowee, one of this cluſter, near two hundred canoes put off to meet us loaden with hogs, fruits, and freſh vegetables, which the inhabitants threw on board, and obliged us to accept without any recompence. The wind having freſhened, and thus accelerated our courſe, we could only partially avail ourſelves of theſe reſources, and enjoy but for a ſhort

time the agreeable and picturesque view of this island, and the assembled multitude of canoes, the skilful manœuvres of which formed the most animating and entertaining spectacle that can be imagined. On the 29th of May we anchored to the west of this island, situate in lat. 20° 34′ 30″ and 158° 25′ west longitude. The vegetation of this part of Mowee is not nearly so vigorous, or is the population so considerable, as on the eastern side, which we had just touched upon; however we had scarcely cast anchor, before we were surrounded by the inhabitants, bringing us in their canoes hogs, fruits, and fresh vegetables. We commenced our barter with such success, that for a few pieces of iron we had in a few hours on board nearly 300 hogs, and an ample stock of vegetables. The mutual good faith observed on both sides in this traffic can be equalled, I believe, in very few European markets. Notwithstanding the abundance of animal and vegetable food, that this island furnishes to its inhabitants, yet with regard to health, elegance of form, and beauty of person, they are much inferior to the natives of Easter Isle, who are far more scantily provided with the necessaries of life. The inhabitants, however, of Mowee appear to have some analogy of conformation with those of Easter Isle, and even to be of a more robust make, if their health had not suffered from disorders. The common height of these people is about five feet eight inches; they are

of

of a ſpare habit of body, with large features; they have thick eyebrows, dark eyes, a confident, though not forbidding air, high cheek bones, wide noſtrils, thick lips, a wide mouth, rather large but handſome and even teeth; we ſaw a few perſons who had loſt one or more of them; and it is the opinion of a modern navigator, that they manifeſt in this way their grief for the loſs of their relations or friends. During our continuance among them we obſerved nothing to confirm or invalidate this idea.

Theſe people have more ſtrongly expreſſed muſcles, more buſhy beards, and the parts of ſex better furniſhed with hair, than the natives of Eaſter Iſland. Their hair is black, which they cut into the figure of a helmet: one lock, repreſenting the creſt of the helmet, they ſuffer to grow to its full length, tinging the ends of it red, probably by means of ſome vegetable acid. The women are ſhorter than the men, and are deſtitute of the gaiety, the mildneſs, and elegance of form which diſtinguiſh thoſe of Eaſter Iſland. They are in general ill-ſhaped, large featured, have a melancholy air, and are groſs, ſluggiſh, and awkward in their manners. The inhabitants of Mowee, on the contrary, are mild, attentive, and have a degree of politeneſs towards ſtrangers.

Theſe people paint and tattoo the ſkin, bore the ears and the cartilage of the noſe, in which they wear rings by way of ornament. They are uncircumciſed, but ſome among them have a kind of

 infibulation,

infibulation, withdrawing the prepuce behind the glans, and fixing it there by a ligature. Their dreſs conſiſts of an apron acroſs the waiſt, and a piece of cloth wrapped round the body. The ſtuffs made by theſe iſlanders of the bark of the paper mulberry are elegant, and of various conſtructions. They paint them with much taſte, and their drawings are ſo regular as nearly to equal thoſe of our pattern-drawers. Their houſes, formed into villages, are ſquare, and built of the ſame materials as thoſe of Eaſter Iſland. The inhabitants of Mowee appear to be divided into ſeveral tribes, each of which is governed by a chief.

The beauty of the climate and the fertility of the ſoil would render the inhabitants very happy, if they were leſs generally and violently affected with lues venerea and leproſy. Theſe moſt deſtructive and humiliating ſcourges of the human race are characterized among theſe iſlanders by the following ſymptoms, namely, buboes, which ſuppurating, leave cicatrices, with loſs of ſubſtance, warts, ſpreading ulcers with caries of the bones, nodes, exoſtoſes, fiſtulæ, and tumours of the lachrymal and ſalivary ducts, ſcrofulous ſwellings, inveterate ophthalmiæ, ichorous ulcerations of the tunica conjunctiva, waſting of the eyes, blindneſs, inflamed itching herpetic eruptions, and indolent ſwellings of the extremities, and among children ſcald head, or a malignant tinea, from which exudes a fetid and corroſive

roſive ſanies. I have obſerved, that the greater part of theſe unhappy victims of frailty, when arrived at the age of nine or ten, were feeble, languid, liable to maraſmus and rickets.

The indolent ſwelling of the extremities, which we obſerved among the iſlanders of Mowee, and which Anderſon, ſurgeon to captain Cook, has alſo remarked among the greater number of the inhabitants of the South Sea, is nothing elſe than a ſymptom of an advanced ſtate of elephantiaſis, as I aſſured myſelf as much as poſſible in many examinations which I made on a great number of lepers in the hoſpitals of Madeira and Manilla. In this period of the diſeaſe the ſkin has already loſt its ſenſibility: and if the activity of the virus be not checked by a ſuitable regimen and medical treatment, the ſwollen limbs ſoon entirely loſe their irritability and ſenſibility; the ſkin becomes ſcaly, and phlyctænæ are formed filled with a fetid and corroſive ſanies, and very liable to degenerate into gangrenous or carcinomatous ulcers. The quality of their food may concur with the heat of the climate, to keep up and propagate this diſeaſe of the adipoſe membrane; the hogs themſelves, whoſe fleſh forms ſo great a part of the food of the inhabitants of Mowee, are many of them very meaſly; I examined ſeveral whoſe ſkin was ſcabby and full of pimples, and entirely deprived of hair: in opening theſe animals I found the caul ſprinkled with

tubercles, and the viſcera covered with them, ſo as to turn the leaſt delicate ſtomach. Among the diſeaſes which ſo deplorably afflict theſe iſlanders, ſome of them appear to be produced by the venereal virus in all its activity, but more commonly it appears under a degenerated form, or combined with pſora.

The ſhortneſs of our ſtay, and other circumſtances, did not allow me to make any inquiry into the mode of cure practiſed by theſe people; but judging from their hopeleſs reſignation, and the progreſs of their diſorder, I am of opinion, that they are ignorant of any means of even alleviating their miſerable ſituation.

Has the lues venerea been communicated to the Sandwich Iſles by the crews of captain Cook's ſhips? The advanced ſtate of the diſorder, and the numbers that were found affected by it at Mowee, when the Engliſh navigator touched there, nine months and a half after his firſt communication with the natives of Atooi and Oneeheow, joined to the malconformation ſo remarkable in individuals of every age, may, if not demonſtrate, at leaſt induce us to believe, that the venereal diſeaſe exiſted in theſe iſles before the diſcovery of them by captain Cook. The proofs of this may even be taken from his own repreſentation. On his arrival off Mowee, he communicated with ſeveral of the natives, who went to meet him

ſome leagues from the ſhore in their canoes laden with freſh proviſion: after mentioning this, he adds, "I was deſirous of preſerving this iſland from the venereal diſeaſe, by prohibiting our ſailors from having any connexion with the women of the country: but I ſoon perceived that it already exiſted there; a circumſtance that I can only account for upon the ſuppoſition of theſe iſlanders having had communication with their neighbours."

This was the moſt ſimple and obvious explanation, but it does not account for the poſſibility of the fact. For though the iſles of Atooi and Oneeheow are ſeparated from Mowee only by channels a few leagues acroſs, it does not follow, that the communication between them ſhould be ſo intimate as to cauſe a general prevalence of the venereal diſeaſe among the inhabitants of Mowee. Beſides, from captain Cook's narrative it appears, that theſe different tribes are rarely upon good terms with each other; a circumſtance very adverſe to frequent communication. Beſides, how is it poſſible to reconcile with this the conduct of the people of Mowee towards the Engliſh on their appearance off the iſland? If the natives were ſuffering ſeverely from the landing of theſe ſtrangers on the territory of their neighbours, would they have ſo eagerly adminiſtered to their wants, inſtead of manifeſting a reſerve and apprehenſion of them? Beſides, it ſeems to me that it is impoſſible to ex-

plain the rapid advance of the contagion, without having recourſe to the ſuppoſition, that the lues, like epidemic diſorders, is propagated by a peculiar conſtitution of the atmoſphere, a hypotheſis that the experience of medical men has long ſince exploded; the diſorder being certainly produced, not by unwholeſome food, bad air, or ſpontaneous corruption of the humours, but ſolely by the immediate contact of an infected perſon.

From theſe conſiderations I am induced to believe, that the venereal diſeaſe exiſted in the Sandwich Iſlands previous to the arrival of captain Cook, and that it either was indigenous, or had been brought thither by former navigators.

Conſiderable light might be thrown on the origin of lues in this archipelago, by hiſtorical and geographical reſearches; but I wave this diſcuſſion, as foreign to the object of the preſent memoir *.

* After referring the reader to the notes of the preceding vol. p. 52, 53. I cannot avoid obſerving how injurious the ſpirit of ſyſtematizing is, and how it overlooks every argument that oppoſes a favourite theory. The favourable reception of captain Cook at Mowee might be owing to its inhabitants being ignorant, that the cruel diſeaſe, under which they were ſuffering from communication with their neighbours, originated from his ſhip; not to mention, that the recollection and deſire of enjoyment readily induces the forgiveneſs of theſe evils. Was La Pérouſe, on his arrival ſome years after at the Sandwich Iſlands, by the inhabitants of which he might readily be confounded with the Engliſh, expoſed to the leaſt ſymptom

of

of reſentment? On the contrary, he aſſures us, that the advances of the women teſtified their inclination to a renewal of connexion with ſtrangers. The eagerneſs of the inhabitants in ſupplying the ſhips with freſh proviſion, by no means tends to the proof of M. Rollin's ſuppoſition, for they would find an irreſiſtible inducement to traffic in the glittering attraction of European toys, or the more important acquiſition of iron tools. The rapid communication of the diſeaſe will be no longer a matter of wonder, when we conſider, that theſe people are ignorant of the conjugal tie, and even acknowledge no excluſive property in their women.

It is therefore my opinion, that the ancient or modern diſcoverers of the South Sea Iſlands introduced there the venereal diſeaſe, as it was in like manner communicated to the continent of America; for I am not of the opinion of thoſe, who attribute to it a tranſatlantic origin, being perſuaded, that the oldeſt records of its exiſtence are to be found in Europe. But even if it ſhould in reality have been brought from the Antilles, or Domingo, or Cuba, let us not be ſo unjuſt, as to regret the diſcovery of the new world, on account of a diſorder capable of being cured, and which appears to be gradually wearing itſelf out; forgetting that we are indebted to it for the cinchona, the ipecacuanha, the gum copal, the ſimarouba, cochineal, cocoa, guaiacum, maize, &c. and the idea of ſome of our moſt uſeful eſtabliſhments, ſuch as public poſts, and military hoſpitals, not to mention the aſſiſtance that the arts have hence derived; whereas the native Americans have little or nothing of European origin to counterbalance the deſolation of the ſmall-pox, for which they are indebted to their conquerors.—*(Fr. Edit.)*

GEOGRAPHICAL MEMOIR.

BY

M. Bernizet, Geographical Engineer.

EASTER ISLAND.

On the 8th of April 1786, at half paſt ſix in the evening, being to the eaſt of Eaſter Iſland, the land appeared very diſtinctly as repreſented in View I. of the plate; the ſummit A, and all the deſcents from it, were very clearly defined; the two extremities broke off very abruptly, being nearly perpendicular; the ſlope A H was interrupted from H to about its middle, by three ſmall ſummits; the ſlope A I, on the contrary, had a very eaſy outline, compoſed of two ſaliant and three entering angles.

The land ſtretching to the north-weſt of this firſt was much more indiſtinct, and its extremity ſcarcely viſible through the fog; the ſummit K of its higheſt bluff was not above two-thirds of the height of the peak A. This ſummit was almoſt perpendicular at the northern extremity of the declivity H. But towards the north it deſcended more gradually, conſiſting of three entering and two

ſaliant

ſaliant angles: to the ſouth a ridge indiſtinctly marked joined this land to the former, about the middle of its height; its length was three-fourths of the diſtance between H and I.

The land ſtretching to ſouth-weſt of the point I did not exceed one half of the total height, or was its length more than half of the ſpace included between I and H: its regularity was broken by three ſmall ſteep bluffs, and another much lower than the reſt, deſcending gradually on the ſouth towards the ſea. The fog with which it was covered did not allow me to fix its bearings, and for the ſame reaſon I was unable to aſcertain the exact ſize of the angle formed by the iſland.

The ſummit was to weſtward 4° ſouth, at the diſtance of four leagues.

The point I bore weſt by ſouth one degree weſt.

And the moſt northerly Cape bore weſt 1° 30′ north.

On the 9th, at 27 minutes paſt 6 in the morning, the land appeared as in view II. The centre of the Iſle L appeared even and of the ſame height as the peak A mentioned above; and which belongs to the eaſtermoſt bluff. To the ſouth-weſt of this we perceived two paps B, the rapid and bare deſcent of which appeared covered with whitiſh rocks; the land, which to the eaſt was high and peaked, was ſenſibly depreſſed, and became almoſt level, between

tween the two bluffs; its elevation was then very little, and continued unvaried for about a quarter of a league, except a ſmall hillock M, flat at the top, and terminating abruptly to the weſt: the paps appeared but a little way from the ſea-ſhore, and the coaſt ſtretched away a little to the eaſt. Two bluffs C and D, in the ſecond diſtance, joined by a gentle and elongated declivity the paps with the centre of the iſland. Theſe bluffs ſeemed to have crater-like ſummits: the firſt C was the ſmalleſt, and apparently the neareſt; in front of it was a little hill, and behind it a ſtretch of high land at a greater diſtance than the reſt, with two well defined ſummits, connected behind the paps to the low land juſt mentioned.

The centre of the iſle appeared in the third diſtance, and its declivity to the ſea-ſhore was only interrupted by a ſmall hillock very ſimilar to that before the bluff C. The ſummit of the bluff E appeared crater-formed, and much nearer the water's-edge. The irregularities of its deſcent were very viſible, and two intermediate bluffs of no great height united it to the centre L, from which it appeared as diſtant in a ſouth-weſterly direction as it was in the north-eaſterly one from the bluff G. This laſt, which was nearly the height of D, was rather lower and more peaked than another on which it abutted to the north-eaſt. The bluff N, which immediately ſucceeded, was alſo a little higher. Its baſe was large and its north-eaſtern declivity deſcended

ſcended a little more than its ſouth-weſtern. This laſt connected itſelf with that at the extremity of the iſland, which is alſo nearly as high as the centre L, and terminates perpendicularly. There was alſo viſible to the weſt of this point, a rock of an obeliſk-ſhape, and a little further to ſea, a ſmall iſlet, the lowneſs of which had hindered it from being ſooner diſcovered.

At 32 minutes after 10, the land appeared as in the third view. The weſtern extremity of the iſlet concealed the baſe of the obeliſk rock: the coaſt, which in the ſouth-eaſt quarter was very high, rugged, and peaked, offered to the ſight a large and deep entering angle, almoſt perpendicular to the eaſtern extremity of the ſame iſland. This angle a little before reſembled a large gaſh, which, to our ſurpriſe, terminated before it reached the ſhore. Behind it, and in the ſecond diſtance, was ſeen a continued indented ridge, the ſteep and rugged ſides of which appeared to be concave: its centre retired from the eye as its two extremities approached it, converging towards the ſummits of point 2, and the ſouth-weſt cape. Thoſe of this laſt were almoſt horizontal; the other, on the contrary, gradually deſcended by very irregular eſcarpements. Its baſe ſtretched three quarters of a league to the north-north-eaſt as far as point 3, which is the ſouthernmoſt of Cook's Bay, behind which is the landing-place. We were a little more than two leagues

leagues diſtant to the ſouth-ſouth-weſt of point 3, when we diſcovered north eighteen degrees eaſt a low point, before which is a ſmall iſlet ſtill lower, and which at this diſtance appeared united to it at its eaſtern extremity. This is the northernmoſt point of Cook's Bay: it was about three leagues off, and roſe gently towards the eaſt, as far as the ſummit O, whence a perpendicular let fall to the water's-edge would have cut point 3 to the eaſt, at a ſmall diſtance from its extremity.

This ſummit appeared in the third diſtance, advancing a little towards the eye as it ſunk to the ſouth-eaſt. It joined the low lands half way down between point 3 and point 2.

The paps B, more clearly defined than the land in the neighbourhood of the ſummit O, appeared on the ſame level, though they were conſiderably further off. They began to be concealed by the eaſtern extremity of the ſouth-weſt cape, point 1, above which we ſaw the ſummit A a little to the eaſt, mentioned before in views 1 and 2, the whole courſe of the declivity of which was interrupted only by a very ſmall bluff between it and the eaſt point.

The chart of Eaſter Iſland was conſtructed from theſe obſervations, and the tour that we made into the interior of the country. Each of the principal points was aſcertained by ſeveral operations, whence it appears, that the direction of this iſland is nearly eaſt-north-eaſt and weſt-ſouth-weſt in its longeſt dimenſions,

PLAN
and Views of
EASTER ISLE,
on the same Scale.

Marine Miles 60 to a Degree

1 2 4 6 8 10 12 15

The Letters A.B.C. &c refer to the same Objects in the Plan and in the Views.

View 1.

A. W. 4° S. distant 4 Leagues. I. W. 4 S. W. 1° W. North Cape W. 1° 30' N.

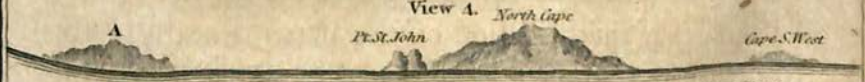
View 2.

East Cape N. distant 2 Leagues. South West Cape W. by S. N.

View 3.

East Cape N. by E. 5° 30' E. Pt. Basse N. by W. 18° 30' E. Small I. N. by E. 30' E. dist. 1 League.

View 4.



North Cape S. 15° East — distant 13 Leagues. A. S. 25° E. South West Cape S. 9° East.

ſions, taken from the middle of the eaſtern cape to the weſtern extremity of the ſouth-weſt cape. A line to unite theſe two points would paſs over the land by the ſouth-eaſt coaſt, it would be rather more than four leagues in length, and parallel to one which ſhould join the moſt ſouthern land of the eaſt cape to the moſt ſouthern of the weſt cape. The interval between theſe two lines would be nearly half a league.

The line which paſſing along the weſt ſide ſhould join the weſternmoſt to the northernmoſt point would be in a direction north-north-eaſt, and ſouth-ſouth-weſt; its length would be two leagues three quarters, it would cut Cook's Bay, and paſs over the land only from the northern extremity of that bay.

A third line from the northern point to the centre of the eaſtern cape would paſs along the third or northern ſide of the iſle: the two moſt conſiderable points that it would cut would be Gonzalez Bay, where the Spaniards anchored in October 1770, and the moſt northern land of the eaſt cape. The direction of this line would be eaſt by ſouth five degrees ſouth, and weſt by north five degrees north; its length two leagues three quarters.

Hence it appears, that the form of this iſland is an iſoſceles triangle, the longeſt ſide of which, the ſouth-eaſtern, is rather more than four leagues: the quantity of each of the angles of the baſe is 41 degrees, and of that

that oppoſite to the baſe 98 degrees, and the length of the northern and weſtern ſides is two leagues three quarters.

From theſe data it would be eaſy to determine its ſurface, if a ſource of error did not originate from the ſuperior ſize of the capes and advanced points to the creeks, bays, and other indentations, as they would give an extent of 30,870,671 ſquare toiſes, inſtead of 34,935,319, or thereabouts, which is the amount of the true ſurface. There is a difference between theſe ſums of 4,064,648 toiſes, nearly $\frac{1}{7}$ of a ſquare league; the whole ſurface therefore contains about four ſquare leagues and one-fifth.

The depth in Cook's Bay varies from ten fathoms, coral bottom, within 200 toiſes of the ſhore to fifty fathoms, gravelly bottom, at the diſtance of half a league to the weſt of Sandy Creek. The depth increaſes very rapidly, and the only anchoring ground is a ſmall ſpace around the ſtation of our frigates; for further out to ſea the depth is too conſiderable, and nearer the ſhore the cables are liable to injury from the coral rocks, beſide the danger of being blown aſhore by the weſterly winds; the wind, however, rarely blows from this quarter, and never with ſo much violence as to prevent a veſſel from plying to the northward.

From the Spaniſh chart of this iſland it appears, that nearly the ſame depth of water is to be met with along its

its whole circuit. The whole of the north coaſt in our chart has been copied from the Spaniſh one, for it was left unviſited by us. The Spaniards anchored there on the open ſhore, and in a foul bottom, with the wind on the land; ſo that there is no reaſon to prefer it to Cook's Bay.

The particular plan of this bay was laid down only from a ſingle operation, by eſtimating at each obſervation the diſtance between points already aſcertained. As to its topography, it is leſs ſtriking, becauſe the deſcent of the different bluffs is very gradual and even: it would, however, be difficult to gain their tops on account of the immenſe quantity of looſe ſtones with which they are overſpread, and which render even the whole iſland hardly acceſſible, but by the paths which croſs it in every direction. The breadth of theſe paths does not extend a foot and a half; they are very firm, and wholly cleared from ſtones; they lead chiefly to the cottages and burying-places or Morais. Some of the cottages are conſtructed of rough ſtone, and of an ellipſoid form: the walls are very thick, the roof is compoſed of great ſtones, a little arched on the inner ſurface, leaning by both ends on the top of the walls; a ſmall opening at one of the ſides ſerves both for window and door; it will only admit a ſingle perſon at a time creeping on hands and knees.

The

The walls on the inſide are perfectly bare, and there is no diviſion of apartments.

	Feet.
Length of the long axis - -	24
—— of the ſhort axis - - -	6
Height of the centre - - -	7
Ditto —— at the top of the ellipſe -	4
Thickneſs of the walls - - -	4
Height of the door - -	2
Width —— ditto - - -	2

In the conſtruction of their ſubterraneous cells the natives have often taken advantage of the natural caverns that abound in the lava; whence it happens that ſeveral of them are very irregular, and at a diſtance from their cottages; but as often as, with their inadequate tools, the inhabitants have been able to overcome the natural irregularities, they have brought them to a regular ſhape of the following dimenſions.

	Feet.	Inches.
Depth of the cave or length of the greateſt axis	30	—
Breadth of the middle - - -	11	—
Height of the centre - - -	5	6
Breadth of the door - - -	2	—
Height of ditto - - -	3	—

It is in theſe ſubterraneous caves that the iſlanders ſtore

ſtore up their food, their tools, their wood, and in general what little property they poſſeſs.

At a little diſtance from the cottage and cave is a round hole dug in the earth, lined and covered with rough ſtone; its diameter is three feet, its depth two feet.

It may alſo be remarked, that the north-eaſt ſide of the cottages, being the part moſt expoſed to the wind, is conſiderably higher than the reſt, and the top of the cottage, which ſerves as a terrace, is by this means in a great meaſure protected from wind and driving rain.

The ſame ſtructure is made uſe of in the other cottages that are ſituate among their plantations: their form is that of an elongated ellipſe, being very narrow in proportion to their length; the foundations are formed of ſquared ſtones ſunk in the ground, about two feet long and ſix inches thick, with holes at regular intervals, in which are fixed ſtakes, that ſerve to ſupport croſs bars, which are ſtill further ſtrengthened by uprights driven into the ground, at the diſtance of ten feet from each other: they are covered with ruſh-mats. The two doors, of which there is one at each ſide, are not larger than thoſe of the common cabins, and the holes in the earth, like thoſe mentioned above, are paliſaded on the windward ſide.

	Feet.
Length of the axis of the ellipſe - -	310
Breadth of the centre - - -	10
Height of ditto - - - - -	10
Ditto at the extremities - - -	4
Breadth at ditto - - - - -	3

The form of theſe buildings is not however invariable, for ſome at the centre, either from the plan or elevation, are more arched than the curvature of the ellipſe.

The ſmall cottages are ſcarcely capable of holding ſix perſons; ſome of them have at the entrance a kind of portico.

There are alſo hollowed rocks, under which the iſlanders find a ſhelter; the floor of theſe retreats is covered with ruſhes, but they are entirely expoſed to the open air, and appear to be their ſummer habitations.

The burying places or morais are of a more remarkable ſtructure; their dimenſions are very various, but their form is invariably the ſame. On an horizontal baſe is erected a ſloping wall made of cut ſtone; this wall is more or leſs high according to the ſlope of the baſe on which it ſtands: its ſummit is terminated by an horizontal platform made of rough ſtones, into which are let rectangular pieces of hard ſtone, which ſerve as the baſe to thoſe almoſt ſhapeleſs maſſes that repreſent buſts. Theſe figures,

as

as may be ſeen in the plate, are ſurmounted by a cylindrical capital a little hollowed in its lower end to receive the head of the buſt. It is compoſed of red lava, very porous and light. Two ſteps, below the platform, made in the ſame manner, and edged with the ſame kind of ſtone, lead by a gentle ſlope to a terrace which is bordered by a kind of parapet made of the earth, dug away in order to level the terrace. There are ſome ſteps which have a plinth on their upper part, running along the whole length, on which are repreſented recumbent ſkeletons, and not far from the lower ſtep are entrances or narrow trenches that lead into a cavern, in which are found ſeveral human bones: the form of this cavern is irregular, and its ſize does not appear at all to depend on the proportions of the morai.

	Feet.	Inc.
Height of the wall - - - -	8	0
*Length of the platform - - - -	80	0
Breadth of Do. - - - - -	12	0
Height of the ſteps - - - -	2	0
Breadth of Do. - - - - -	3	0
†Length of the terrace - - - -	384	0
Breadth of Do. - - - - -	324	0

* We ſaw one of theſe 267 feet long.

† The dimenſions are for the moſt part inferior to thoſe given above.

	Feet.	Ins.
Height of one of the large buſts	14	6
Do. from the baſe to below the chin	9	6
Height from the chin to the top of the head	5	0
Do. to below the noſe	1	6
Length of the noſe	1	8
Projection of Do.	0	10
Breadth of the lower part of Do.	1	2
Length of the ears	2	0
Long diameter of the orbit	1	0
Do. of the eye	1	0
Short diameter of Do.	0	10
Breadth of the baſe	6	0
Do. at the ears	5	3
Do. at the ſhoulders	7	6
Do. at the neck	4	6
Thickneſs of Do.	3	0
Do. of the belly	3	6
Height of the capital	3	1
Diameter of Do.	4	9

Theſe meaſures are thoſe of one particular monument, for there is an infinite variety in theſe dimenſions. It may be remarked, that though the greater part of the ſtones made uſe of in this building are well ſquared, there are ſeveral that are rather convex, which ſeems to prove, that they were not cut, but ground into ſhape; and the exact paralleliſm of the greater number does not invalidate this aſſertion, as it may depend on the greater or leſs ſkill of the artiſt. As to the difficulty of tranſporting

ing and erecting theſe without any mechanical aſſiſtance, this will diſappear by reflecting, that by the aſſiſtance of arms, cords, two levers, and three wooden rollers, it is eaſy to tranſport and raiſe the moſt enormous maſſes.

Their plantations are very numerous; their fields, planted with potatoes and yams, are all of a rectangular ſhape; they are without either hedge or fence of any kind, as well as the plantations of the paper-mulberry. The banana trees are arranged in a quincunx order, and very carefully attended to. The ſea coaſt is very ſteep, containing but few landing places. It is ſingular that there is no brook, the water loſing itſelf among the large ſtones that cover the ſurface of the whole iſland. The only freſh water to be had, and that of a very inferior quality, is contained in a few inconſiderable excavations towards the ſummits of the rocks. Trees are very ſcarce, we did not even ſee a ſingle one worthy of the name.

On the 10th of April, at nine in the morning, being about 13 leagues from the iſland, it appeared as in view IV. The centre of the iſle, together with the ſummit of the north cape, though miſty, was yet ſufficiently clear to allow us to diſtinguiſh its eſcarpments; it joined to the ſea on its weſtern ſide by an even gradual ſlope; its eaſtern ſide was alſo very regular, and longer than the former. The two heights called by the Spaniards San Juan and Santa

Roſalia, roſe above the extremity of the cape, and appeared before it; the vallies were obſcured from the view. The ſummit A of the eaſt cape, appearing ſeparated from the reſt, ſeemed to be another iſland; its height was the half of the middle ſummit: the interval between the two was equal to the baſe of the main land; the baſe of the eaſt cape appeared only a quarter of the dimenſions of the former.

The cape of the ſouth-weſt was ſtill viſible in the weſt, but was very low and indiſtinct; its form was nearly flat, and its diſtance from the centre of the iſland was only the half of the baſe of this latter.

The bearing of the ſummit of the iſle was ſouth 15 degrees eaſt.

That of the ſummit A of the eaſt cape, ſouth 25 degrees eaſt.

And that of the ſouth-weſt cape, ſouth 9 degrees eaſt.

On board the Bouſſole, April 18, 1786.

(Signed) BERNIZET.

PHYSIO-

PHYSIOLOGICAL AND PATHOLOGICAL MEMOIR

CONCERNING THE NATIVES OF AMERICA,

By M. Rollin, M. D. Surgeon Major of the Frigate la Bouſſole.

OWING to a number of unforeſeen circumſtances, I was not made acquainted with the inſtructive memoir tranſmitted to M. De La Pérouſe by the ſociety of medicine till the completion of the following diſſertation; if therefore the propoſed object ſhould not be entirely attained, theſe obſervations, ſuch as they are, will, I hope, be received with indulgence.

Of the Natives of Chili.

The ſtructure of the body among theſe people offers nothing extraordinary: they are in general of a lower ſtature and leſs robuſt than Frenchmen; nevertheleſs they endure with great courage the fatigues of war, and all its attendant privations. They have in ſeveral inſtances impeded the progreſs of the Spaniſh arms, and ſometimes even been victorious; their hiſtory abounds with ſo many inſtances of bravery, as to have won for them, even from the

proudeſt Spaniards, the honourable title of *Indios bravos*; nor have their preſent deſcendants loſt the animating remembrance of the deeds of their anceſtors.

There is a great ſameneſs in the phyſiognomy of moſt of the individuals of this nation: the face is larger and rounder than that of Europeans; the features are more ſtrongly marked; the eyes are ſmall, dull, black, and deep ſeated; the forehead is low, the eyebrows black and ſhaggy; the noſe ſhort and flatted, the cheek-bones high, the lips thick, the mouth wide, and the chin diminutive.

The women are ſhort, ill made, and with diſguſting countenances; in no inſtance did I obſerve that mildneſs of features, and elegance of form, which uſually characterize the ſex.

Both men and women bore their ears and noſe, which they adorn with glaſs or mother of pearl trinkets. The colour of their ſkin is a reddiſh brown, that of their nails is ſimilar but not ſo deep. The hair of both is black, coarſe, and very thick; the men have but little beard, but their armpits and parts of ſex are well furniſhed with hair, which parts in moſt of the women have none.

Of the Natives of California.

Theſe people live in the northern hemiſphere, about the ſame diſtance from the line as the Chilians in the ſouth.

During

During my ſtay at Monterey I had an opportunity of examining ſeveral of both ſexes, and I obſerved very little reſemblance between them and the Chilians. The men are much taller, and of a more robuſt make, but inferior in courage and ſenſe to thoſe of Chili. They have a low forehead, black and thick eyebrows, dark deep ſeated eyes, ſhort noſe depreſſed at the root, high cheek bones, a rather large mouth, thick lips, and very fine teeth. They are deſtitute of induſtry and curioſity, being extremely indolent and very ſtupid: they turn their toes inwards in walking, and their timid carriage at firſt ſight announces their puſillanimous character.

The women of California alſo differ in ſeveral particulars from thoſe of Chili: they are taller, better limbed, and moſtly of leſs diſguſting features. The hair of the head is very ſimilar in both nations; but the Californians are better bearded than the Chilians, and the parts of ſex better clothed: however, I remarked among the men a great number of individuals entirely beardleſs; the women alſo have little hair under the armpits and on the parts of ſex: theſe peculiarities, however, I was informed, are only artificial, the hair being eradicated by ſcraping with ſhells, or plucking up by means of a cleft ſtick.

Theſe people paint the ſkin by way of ornament, and bore their ears, in which they wear trinkets of various kinds and ſhapes. Their ſkin is tawny and their

their nails of a lighter colour than thoſe of the Chilians.

Of the Americans in the Neighbourhood of Port des Français.

Theſe people appear to me to have very little ſimilarity to the Californians; they are taller, ſtouter, of a more agreeable figure, and great vivacity of expreſſion: they are alſo much their ſuperiors in courage and ſenſe. They have rather a low forehead, but more open than that of the ſouthern Americans; their eyes are black and very animated, their eyebrows much fuller; their noſe of the uſual ſize and well formed, except being a little widened at the extremity; their lips thinner, their mouth moderately large, their teeth fine and very even, their chin and ears very regular.

The women alſo have an equal advantage over thoſe of the preceding tribes; they have much more mildneſs in their features and grace in their limbs.

Their countenance would be even very agreeable, if, in order to ſet it off, they did not make uſe of a ſtrange cuſtom of wearing in the lower lip an elliptical piece of wood, lightly grooved on its circumference and both its ſides, and which is common-

A Woman of Port des Français.

ly half an inch thick, two in diameter, and three in length.

This ſingular ornament, beſides being a great deformity, is the cauſe of a very troubleſome as well as diſguſting involuntary flow of ſaliva. This appendage is peculiar to the women; and female children are made to undergo the preparatory operations from the time of their birth.

For this purpoſe the lower lip is pierced with a kind of pin of copper or gold, which is either left in the opening, or its place is ſupplied with a ring of the ſame material, till the period of puberty. The aperture is then gradually enlarged by ſubſtituting firſt a ſmall piece of wood of the form mentioned above, then a larger one, and ſo on increaſing its ſize by degrees till it reaches the dimenſions juſt ſtated.

This extraordinary cuſtom ſhows the great power of dilatation in the lip, and may encourage medical practitioners in their attempts to remedy deformities of this part by the uſe of the knife.

The general colour of theſe people is olive, a fainter tinge of which is apparent in their nails, which they ſuffer to grow very long; the hue of the ſkin, however, varies in different individuals, and in various parts of the ſame individual, according to their expoſure to the action of the air and ſun.

Their

Their hair is in general neither ſo coarſe nor black as that of the South Americans. Cheſnut-coloured hair is by no means unfrequent among them. Their beard is alſo fuller, and their armpits and parts of ſex better provided with hair.

The perfect evenneſs of their teeth led me at firſt to ſuſpect that it was the effect of art; but after an attentive and minute examination, I could perceive no wearing away of the enamel, and I ſaw that this regularity is natural. They tattoo and paint their face and body, and bore their ears and the cartilage of their noſe.

Some writers have imagined, that the cuſtom of painting the face and body, ſo generally adopted by the Africans, Americans, and Weſt Indians, is only intended as a preſervative againſt noxious inſects. I think, however, that I am warranted in aſſerting its ſole end to be ornament. I found it to prevail among the inhabitants of Eaſter Iſland, and the natives of *Port des Français*, without obſerving among them either venomous inſects or reptiles. Beſides I remarked, that they wore paint only when they paid us a viſit, for they made no uſe of it when in their own houſes.

General Obſervations.

Thoſe writers, who have ſpoken of the Americans as a degenerated race of men, have given the reins

to

to their imagination, inſtead of attending to the dictates of truth. Some of them have even gone ſo far as to extend this idea of deterioration to Europeans, naturalized in America. The refutation of this aſſertion may be ſafely left to ſuch men as Waſhington, Adams, and Franklin, whoſe extraordinary abilities and merits excuſe me from entering into any diſcuſſion on this ſubject.

It appears to me alſo, that the ſame writers have not been more happy in their opinions with reſpect to the ſuppoſed degradation of animals tranſplanted from the old continent to America. As to the exiſtence of thoſe defects, or particular modifications, that have been ſuppoſed in the internal ſtructure of the genital parts of thoſe people, and which have alſo been attributed to the degradation of the human ſpecies in America, I can only ſay, that my opportunities have not enabled me to make the neceſſary inquiries on this ſubject; but if it be allowable to judge of the internal organization by the external appearance, I ſhould ſuppoſe it to be perfect. Beſides, I have never obſerved among theſe people either thoſe enlargements of the ſcrotum, or enormous ſwellings of the penis, or thoſe men in whoſe breaſts milk is ſecreted, as travellers have related: nor, on the other hand, have I obſerved in Americans that ſuperiority in the organs of ſenſe, or greater ſpeed in running, which is commonly attributed to them; and if there really exiſt a dif-

ference as to the perfection of theſe faculties, it appears to be in favour of civilized nations.

The progreſs of life among theſe people appears to have the ſame periods of growth and decline as amongſt us. Some ſlight differences, however, are cauſed by the climate, the mode of life, and manners. In Chili and in California the beard makes its appearance, and the voice alters, about the thirteenth year, announcing the age of puberty. The girls generally attain this period about eleven or twelve. The fulneſs of the breaſts and the menſtrual diſcharge are the ordinary ſigns. The quantity of this periodical evacuation varies in different individuals, according to their conſtitution and mode of life. If no particular accident interrupts the natural order, this diſcharge takes place every month, laſting from three to eight days. Women are ſubject to it till about their fortieth year. It is not, however, rare, to ſee women give ſigns of being in a ſtate of child-bearing at a more advanced age. Old age and decrepitude announce themſelves among theſe people, as among civilized nations, by the withering of the body, loſs or dimneſs of ſight, and other ſenſes, and change in the colour of the hair and beard. Thoſe women who have had ſeveral children have, like Europeans in ſimilar circumſtances, the breaſts flaccid and pendent, and the ſkin of the belly wrinkled.

The various tribes of which this people is compoſed

poſed have nearly the ſame paſſions, the ſame exerciſes, and the ſame mode of life. They are equally violent in their expreſſion of joy or anger, and extremely ſuſceptible of both. Thoſe of *Port des Français* are daring robbers, exceſſively iraſcible, and moſt of all to be guarded againſt by ſtrangers. Their ordinary food is game and fiſh; but though the chaſe and the fiſhery offer them freſh proviſion in abundance, they often prefer tainted and almoſt putrified food to giving themſelves the trouble of procuring better. Their idle diſpoſition renders them ſtill leſs delicate in the preparation of their food. When preſſed by hunger they content themſelves with ſimply broiling it on the fire, or ſteeping it in a wooden bowl filled with water, which is cauſed to boil by repeatedly plunging into it red hot ſtones. Their hours of repaſt are ſometimes determined by appetite, but in general each family about ſunſet aſſembles together to a common meal.

The inhabitants of California and *Port des Français* make no uſe of vegetables, except a few pine nuts, and other ſpontaneous fruits during the ſummer; but even theſe fruits never conſtitute an eſſential part of their nouriſhment. Their idleneſs keeps them ſober, as plenty makes them gluttons.

Theſe tribes are divided into hordes, each of which commonly forms a ſmall hamlet. Their cabins, conſtructed of twigs or branches, are ſupported by four ſtakes, and covered for the moſt part with

with bark; they are of a ſquare or conical form, protecting them only very indifferently from the inclemency of the weather; the entrance is low and narrow, the fire is made in the middle, and the ſmoke eſcapes through a hole in the roof. They lie down to ſleep indiſcriminately, without diſtinction of age or ſex, on ſkins that they ſpread round the fire; they take very little care in building their huts, becauſe the reſtleſſneſs of their diſpoſition often induces them to quit them for new ones, which they often build by the ſide of their old ones. The ſituations that they moſt prefer are the banks of rivers, or the ſouth ſide of the mountains. The only habitations at all ſolid, and of any ſize, that I have obſerved on this coaſt, are thoſe of a horde eſtabliſhed on the ſide of a ſmall river abounding with fiſh about four miles from *Port des Français*. Theſe cabins were conſtructed of very thick planks, they were of a rectangular form, about fifteen feet high, and able to contain thirty or forty perſons. The doors were low, narrow, and ſliding; the inſide offered nothing remarkable: we only obſerved a kind of bench, on which the women and children were at work on ſome articles of furniture. They had eſtabliſhed on the little river, at the foot of their habitations, a wear for fiſhing, the conſtruction of which was not leſs ingenious than thoſe mentioned by M. Duhamel. Of theſe people, the men particularly attend to martial exerciſes, to fiſhing and hunting. Their

arms

arms are the bow, javelin, and dagger. The peculiar province of the women appears to be the cooking of the food, and other domeſtic concerns. Though their huſbands are of a very ferocious diſpoſition, I never obſerved that they were treated in ſo barbarous a manner as is reported by moſt travellers. On many occaſions, I obſerved that they ſhewed them much regard and deference. It appears, moreover, that polygamy is the cuſtom of theſe people, and their marriages laſt only during the pleaſure of both parties. They attach very little importance to the excluſive poſſeſſion of their women, as they often expoſed to ſale their favours for a piece of iron or a few glaſs beads.

Though theſe Americans appear to compoſe a conſiderable population, with the ſame intereſts and ſimilar manners, yet each family appears to live ſolitarily, and to have an independent government of its own. Each family has its own chief, its own cottage, its own canoe, its own inſtruments for fiſhing and hunting, and, in ſhort, every means of ſubſiſtence and defence. I thought, however, that I perceived among them ſome chiefs, who appeared to command ſeveral families, but the reſpect paid them by the reſt was very inconſiderable. Theſe chiefs are taller, ſtronger, and have more courage than the reſt of the inhabitants. They are in general covered with great ſcars, which they diſplay as teſtimonies of their valour. They are alſo diſ-

tinguiſhed by a peculiar richneſs and elegance of clothing. The dreſs of the women conſiſts of a leather ſhift, which reaches to the mid-leg, and a fur cloak, which covers them from the ſhoulder to the knee. The men wear a ſimilar cloak, and ſometimes a leathern ſhirt, and buſkins of ſeals' ſkins, but commonly they go bare-footed.

It is difficult, not to ſay impoſſible, for a traveller unacquainted with their language, and with a very imperfect knowledge of their cuſtoms, to give any accurate notions of their domeſtic economy, and to draw up a methodical and ſatisfactory account of their diſeaſes. It cannot, however, be doubted, that their manner of life, their intemperance in their pleaſures, and the viciſſitudes of their climate, expoſe them to many diſorders, and I ſhall enter a little into detail concerning the diſeaſes of the natives of California.

The great number of Americans, who are aſſembled in the miſſion of San Carlos, gave me an opportunity of obſerving ſeveral of theſe diſeaſes, in which I was aſſiſted by father Matthias, miſſionary, and M. Carbajole, ſurgeon in chief of the colony.

The temperature of California undergoes great alterations at different periods of the year; and its influence on the inhabitants occaſions peculiar diſeaſes: for though theſe people appear accuſtomed to the ſudden variations of the atmoſphere, they are, however,

however, more ſubject than Europeans to maladies cauſed by continued exceſs of temperature. Sore throats, catarrhal affections, pleuriſies, and peripneumonies, are the moſt common winter diſeaſes. The remedies that they have recourſe to conſiſt of ptiſans, made with different plants, which they afterwords bruiſe, and apply to the part affected. When theſe diſorders attain a certain height, they commonly degenerate, through the inefficacy of their modes of cure, into chronic diſorders, and thoſe patients who have ſurvived the firſt ſtage of the diſeaſe, uſually fall victims to it in the form of phthiſis pulmonalis. Quotidian and intermittent fevers, and dyſpeptic ſymptoms, occur chiefly in ſpring and autumn. I am not certain whether theſe people be acquainted with any remedy in the treatment of fevers, which ſupplies with them the place of the cinchona. Their practice ſeems to conſiſt ſolely in exciting vomiting, by thruſting the finger down the throat, and copious ſweats by vapour baths, which I ſhall deſcribe preſently. The moſt common ſummer diſorders are putrid, petechial, inflammatory, and bilious fevers, and dyſentery. Their want of care and knowledge in the treatment of theſe diſeaſes almoſt always cauſes them to terminate fatally, and when the efforts of nature are inſufficient to induce any ſalutary evacuation either by ſtool, urine, or ſweat, the patient dies.

It is obſervable, that theſe critical evacuations are

almoſt always ſerviceable to the patient, when they occur from the eleventh to the twenty-firſt day, reckoning from the commencement of the complaint. Their moſt formidable diſorders are inflammatory and bilious fevers, for their progreſs is ſo rapid as ſeldom to leave the patient ſtrength to ſtruggle through.

Beſide theſe, the Californians are alſo liable to nervous fever, rheumatiſm, itch, ophthalmia, lues, and epilepſy. I ſaw, at the miſſion of San Carlos, a woman affected with this laſt, of which the fits commonly laſted about two hours. Moſt of theſe Americans are affected with ophthalmia and itch, yet they make no uſe of ſpirituous liquors or freſh or ſalted pork, which are generally ſuppoſed to be the cauſe of theſe complaints, as well as of other cutaneous affections to which they are ſo ſubject: nor do I think that theſe are with any better reaſon attributed to tatooing and painting the ſkin.

The inhabitants of Baie des Français have the ſame cuſtoms, and beſides live in a very filthy manner; yet inſtances, or even traces of itch are very rarely to be met with among them. It may not be improper to add, that on board our ſhips on the American ſtation, during the laſt war, I obſerved, that in the courſe of five or ſix months a great number of our ſailors, and even officers, were affected with cutaneous diſorders, that reſiſted every remedy which we applied, but which for the moſt part diſappeared of themſelves, on our removal

into more temperate climates. From all theſe circumſtances, it appears certain, that the cutaneous diſorders which ſo generally affect the inhabitants in the neighbourhood of the equator, are cauſed by an acrimonious alteration of the humours brought on by the great heat of theſe climates; and I have no doubt, that the conſtant action of the air and ſun upon the ſkin of theſe people, who go continually naked, contributes much to theſe maladies, and renders them more obſtinate. Every perſon knows, that they were formerly very common in Europe, and that they have loſt much of their malignity, and are become comparatively rare, in proportion as the uſe of linen and habits of neatneſs ſucceeded to the groſs and filthy mode of life, which took place on the fall of the Roman empire.

Epidemic diſeaſes, ſuch as the ſmall-pox and meaſles, occur only accidentally in America, that is, are always imported by European veſſels. The natives, however, are very liable to the infection, and the attacks of the ſmall-pox eſpecially prove far more fatal to them than any other diſorder. The ſymptoms and progreſs of this malady are the ſame as take place among Europeans; it alſo aſſumes the characters of diſtinct, and confluent or malignant, but it generally makes its appearance under this laſt form.

The venereal diſeaſe, which, according to common tradition, was unknown in Europe till the return of

Columbus, appears, from the teſtimony of ſeveral ſenſible men at Monterey, to whom I put the queſtion, to have originated in California from the connexion of the natives with thoſe Europeans who are ſettled in this part of the new continent. Whatever be the ſource of this diſeaſe among theſe people, the ſymptoms that denote it are nearly the ſame as with us, ſuch as buboes, chancres, excreſcences, and gonorrhœa.

The modes of cure, in which the natives appear to place the moſt confidence, are, the ſand-bath, called by them *tamaſcal*, and a warm ſudorific drink, prepared by the decoction of certain herbs, which produce, as I have been informed, very uniform effects.

The manner of preparing the *tamaſcal* conſiſts of ſcooping a trench in the ſand, two feet wide, one foot deep, and of a length proportioned to the ſize of the patient; a fire is then made through the whole extent of it, as well as upon the ſand, which was dug out of the hollow. When the whole is thoroughly heated, the fire is removed, and the ſand ſtirred about, that the warmth may be equally diffuſed. The ſick perſon is then ſtripped, laid down in the trench, and covered up to his chin with heated ſand. In this poſition a very profuſe ſweat ſoon breaks out, which gradually diminiſhes, according as the ſand cools. The patient then riſes and bathes in the ſea, or the neareſt river. This proceſs

teſs is repeated till a complete cure is obtained. The plant which they generally make uſe of in venereal caſes, is known to the Spaniards by the name of *gouvernante*. The following are the characters of this plant, taken from dried ſpecimens:

Calyx quadrifid, egg-ſhaped, of the ſame ſize with the corolla; placed beneath the fruit, deciduous.

Corolla polypetalous; petals four, ſmall, entire, egg-ſhaped, fixed upon the receptacle.

Stamina, eight, fixed to the receptacle, of the ſame length as the corolla: threads channelled, concave on the one ſide, and convex on the other; wings veiled, antheræ ſimple.

Piſtil, germ oblong, covered, with five angles, and five cells; ſeeds oblong; pericarpium covered with fine hairs.

This plant is a ſhrub of middle ſize; the branches are angular and knotty, and covered with an adheſive varniſh; the lateral branches are alternate, and placed very near to each other: the leaves are ſmall, petiolated, bilobed, oppoſite, ſmooth on the upper ſide, the under ſide indiſtinctly veined; the bloſſoms are axillary, ſometimes terminating, pedunculated, ſolitary, but ſometimes in pairs.

The women are ſubject to the peculiar diſorders of their ſex, independently of thoſe which are common to them and the men, ſuch as thoſe which are

the conſequences of lying-in, uterine hemorrhages, abortions, &c.

It is however obſervable, that they experience very few inconveniences during pregnancy, and are very generally delivered with great eaſe. Difficult labours are very rare among them, but when they happen, the mother and child generally fall victims; an event which can only be occaſioned by a narrow pelvis, or by an unuſual preſentation of the child.

In natural labours, the firſt pains are uſually ſoon followed by the expulſion of the child. The little danger attending this is owing, doubtleſs, to the uncommon ſize of the pelvis, as will be ſhown in the table of proportions.

As ſoon as the child is born, the old women, who ſupply the place of midwives, tie the umbilical cord and waſh it in cold water. The mother is no ſooner delivered than ſhe goes to bathe in the ſea, or the next river. As ſoon as ſhe comes out of the water, ſhe is ſeated on a warm ſtone, and covered with fur, in which poſition ſhe remains till the ſweat thus brought diminiſhes as the ſtone grows cool. This is immediately ſucceeded by a freſh bathing, and is ſometimes repeated a few days ſucceſſively. Theſe immerſions, and this kind of vapour bath, which are generally made uſe of by the Americans in their treatment of moſt diſeaſes, are occaſionally attended with inconvenience, eſpecially after lying-in.

In

In this caſe they frequently produce ſuppreſſion of the lochia, inflammation of the parts of generation and urinary paſſage, with ſuppreſſion of urine and ſcirrhus of the breaſt, which ſometimes terminates in cancer. There was about ſix months ago, in the miſſion of Monterey, an example of a woman about twenty-five years old dying of a cancer, which had corroded one breaſt and four of the ribs.

When any accidents are the conſequence of this mode of treatment, the old women confine their practice to fomentation of the parts affected, with a decoction of plants or emollient ſeeds. The ſeed that is commonly made uſe of in theſe caſes, as well as in acute fevers, both for drink and fomentation, reſembles linſeed very much in form, colour, and general appearance, and an infuſion affords a ſimilar mucilage. It is called by the Americans *paſſelle*.

The birth of the child occaſionally happens before the end of the ninth month, and theſe inſtances of abortion are by no means uncommon. In theſe caſes the ſame treatment is obſerved as if they had completed their full time, except in caſe of flooding: the woman then continues in bed, and cold applications are made to the lower part of the abdomen. I have not been able to learn by what means the placenta is extracted.

Children at the breaſt are not exempt from the ordinary infirmities of infancy, except rickets, of which

which I have not ſeen a ſingle inſtance. They are ſubject, like European children, to diſeaſes attending dentition, excoriations about the anus, convulſions, hooping-cough, worms, and the worm-fever, ſuppreſſion of the meconium, diarrhœa, maraſmus, and squinting, &c. The time of ſuckling is not limited, ſometimes it is very ſhort, but commonly the mothers ſuckle their children to the age of eighteen or twenty months. The manner in which they ſwathe their children, conſiſts in wrapping them up in fur, having previouſly ſtretched out the legs and fixed the arms to the ſides of the body by means of leather thongs; they then take off the bark from a tree of the ſize of the child, and in the form of a hollow tile, in which the infant is faſtened by thongs of ſkin. As to the brown ſpots which ſome travellers are ſaid to have obſerved on the backs of theſe children, I muſt confeſs that I never ſaw any ſuch thing. In ſhort their organization appeared to be perfectly natural.

Although the diſorders to which the natives of California are ſubject are very numerous and various, the methods of cure that they make uſe of are nearly the ſame in all. I have already ſaid, that they conſiſt in the uſe of a few plants, cold bathing, and ſtoving. The application of theſe remedies, although very much at random, is directed by certain phyſicians, or rather conjurors, who endeavour to in-

ſpire confidence by pretended inſpiration, and extravagant geſtures.

The external diſorders, or thoſe which come under the province of ſurgery, to which the natives of California are moſt ſubject, are fractures, wounds, ulcers, tumours, ruptures, and luxations. The mode of treatment among theſe people for the cure of ulcers and wounds differs but little from that of other common accidents, they leave them to nature. In more ſerious caſes, they only make an application of ſome entire or bruiſed plants to the part affected. If the ichorous diſcharge from the ulcers inflame or corrode the neighbouring parts, they bathe them with an emollient lotion, and when a wound is accompanied with great hemorrhage, they ſtop it with hair, and produce a gradual compreſſion by means of ſlips of ſkin analagous to our bandages. If this be not ſufficient to ſtop the effuſion of blood, the patient commonly dies; but if it ſhould be ſucceſsful, they ſuffer the hair to remain in the wound till it is brought out by ſuppuration, and conduct the remainder of the cure as in common caſes. The cicatrices of wounds or other injuries of the ſoft parts are generally very defective.

If the Californians poiſon their arrows according to the practice of ſome of the American tribes, the ſubſtance uſed for this purpoſe is very ſlow in its operation, and but very little dangerous; for the Spaniards,

Spaniards, who have been ſettled among them ſeveral years, have met with no inſtance of wounds occaſioned by theſe arrows being fatal.

When theſe people are affected with ſimple tumours, they take no care of them; but if inflammation come on, they make uſe of topical emollients or fomentations. Tumours formed by the diſplacing of parts, ſuch as ruptures, are very frequent, eſpecially among the children. They ſeem to be wholly ignorant of the method of returning the parts, or of ſupporting them, when reduced, by a bandage. I reduced ſeveral of theſe tumours in children in the preſence of their parents, with the deſign of inſtructing them in the proceſs, ſo as to heal or prevent accidents ariſing from theſe diſorders; but their want of underſtanding leaves me much in doubt with regard to the efficacy of the pains which I took. Their knowledge alſo of the art of reducing diſlocations is very limited; they make ſome efforts to reduce the limb, but ſo ill directed, as to be generally without ſucceſs. Their treatment of fractures diſcovers more ſenſe: they place the ends of the broken bone in contact, retaining them in their proper poſition by a bandage, and laying the limb in a caſe made of bark that is firmly faſtened by thongs of leather; and the patient is enjoined to keep perfectly quiet till the conſolidation of the part.

I have

I have thought, that the reader would be able more readily to compare the different proportions of theſe people, by forming them into a table, and marking the places and latitudes where theſe proportions were meaſured. But it will be obſerved, that there exiſt in the conſtitutions of theſe people differences, which are modified in a very remarkable manner by climate, exerciſe, mode of life, and even prejudices.

Compariſon

Comparison of the Proportions of the Natives of both sexes of the continent of America, with the latitude of the places where they were measured.

Names of Places	Conception			Monterey.			Baie des Français.		
Latitudes	D M 36 41 South.			D M 36 41 North			D M 58 38 North.		
Proportion of the Men.	Feet.	Inch.	Lin	Feet.	Inch.	Lin.	Feet.	Inch.	Lines.
Common ſtature	5	1	0	5	2	6	5	3	0
Long diameter of the head	0	8	4	0	9	0	0	9	5
Short diameter of Do.	0	5	0	0	5	4	0	5	6
Length of the upper extremities	2	1	6	2	1	9	2	2	3
Do. of the lower	2	8	0	2	9	0	2	10	5
Do. of the feet	0	9	4	0	10	0	0	10	6
Breadth of the cheſt	1	0	0	1	1	0	1	1	4
Do. of the ſhoulders	1	4	8	1	7	0	1	7	5
Height of the vertebral column	1	10	0	1	11	0	2	0	4
Circumference of the pelvis	2	4	4	2	6	8	2	7	5
Proportion of the Women.									
Long diameter of the head	0	8	0	0	8	5	0	8	10
Short diameter of Do.	0	4	11	0	5	3	0	5	5
Length of the upper extremities	2	0	7	2	1	0	2	1	6
Do. of the lower extremities	2	5	2	2	6	0	2	6	8
Do. of the feet	0	8	0	0	8	6	0	8	9
Breadth of the cheſt	0	10	6	0	10	9	0	11	3
Do. of the ſhoulders	1	2	0	1	2	8	1	3	2
Height of the vertebral column	1	8	0	1	8	6	1	8	9
Circumference of the pelvis	2	5	0	2	6	0	2	6	9
Diſtance from one anterior ſuperior ſpinous proceſs to the other	0	8	0	0	8	5	0	8	10

Theſe proportions were meaſured in the following manner: for the upper extremities, from the head of the humerus to the extremity of the middle finger: for the lower extremities, from the head of the femur to the heel: for the feet, from the heel to the great toe: for the breadth of the cheſt, from the articulation of the humerus on the one ſide to that of the other: the height of the vertebral column was taken from the firſt cervical vertebra to the ſacrum: the long diameter of the head, from the ſuperior angle of the occiput to the ſymphyſis of the chin; and the ſhort diameter, from the centre of one parietal bone to the other.

MEMOIR

CONCERNING CERTAIN INSECTS,

By La Martiniere, Naturaliſt.

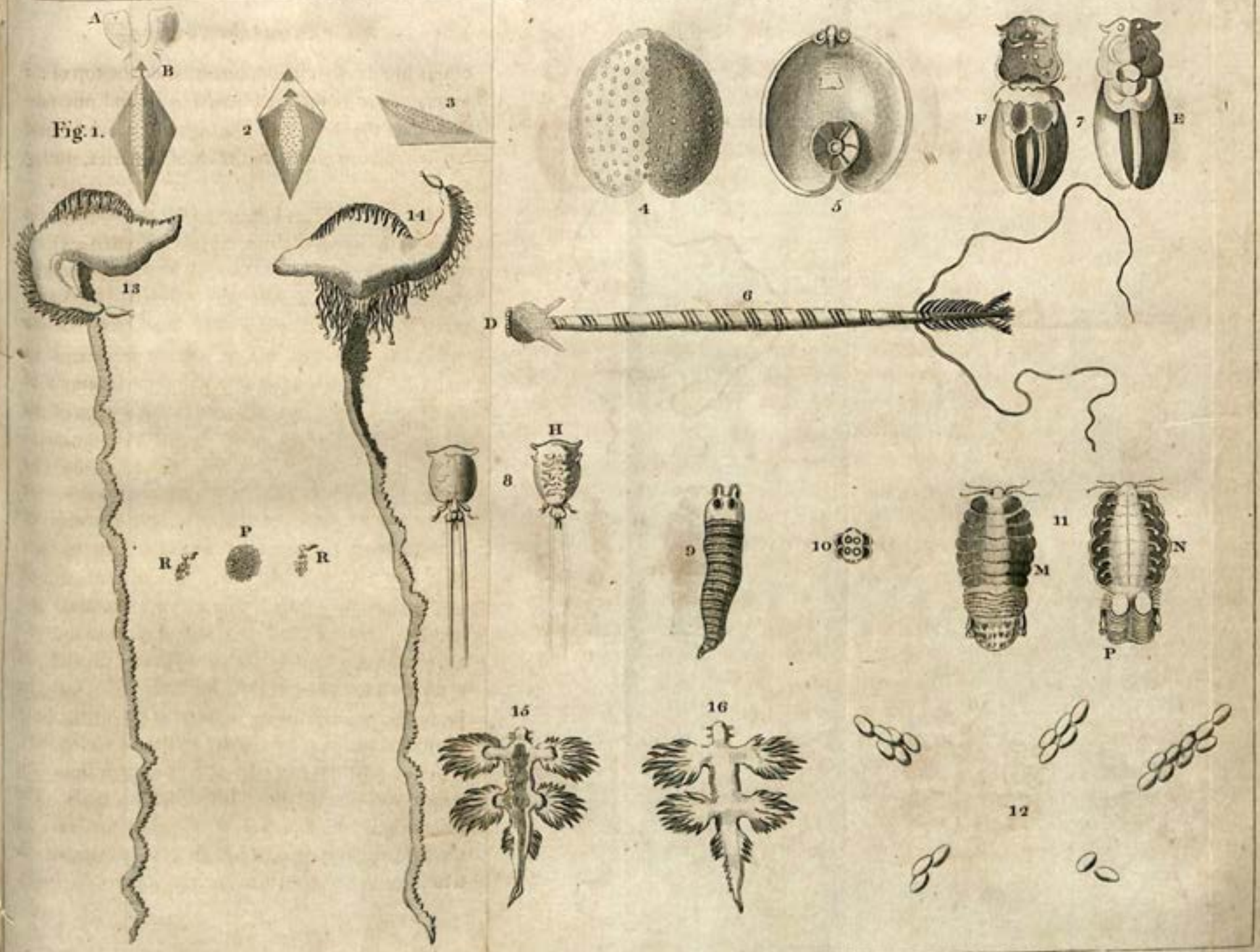
THE inſect, which is figured N° 1, inhabits a ſmall priſmatic triangular cell, pointed at the two extremities, of the conſiſtence and colour of clear brittle ice: the body of the inſect is of a green colour, ſpotted with ſmall bluiſh points, among which are ſome of a golden tinge; it is fixed by a ligament to the lower part of its ſmall habitation: its neck is terminated by a ſmall blackiſh head compoſed of three converging ſcales, in the form of a hat, and encloſed between three fins, two of them large and channelled in the upper part (A) and one ſmall, ſemicircular, (B). When it is diſturbed it immediately withdraws its fins and its head into its cell, and gradually ſinks into the water by its own ſpecific gravity. Fig. 2 repreſents the under ſide of the priſm, ſhewing in what manner it is channelled, in order to allow free paſſage to the animal when it wiſhes to ſhut itſelf up in it. Fig. 3 repreſents the profile of the ſame. The movement carried on by the two larger fins, which are of a ſoftiſh cartilaginous ſubſtance, may be compared to that which would be produced by the two hands joined together in the ſtate of pronation, and forming, alternately, two inclined planes and one horizontal plane: it is by means

of

of this motion that it ſupports itſelf on the top of the water, where it probably feeds on fat and oily ſubſtances on the ſurface of the ſea. I found it near Nootka, on the north-weſt coaſt of America, during a calm.

The next inſect (Fig. 4 and 5) is nearly the ſhape of a watch-glaſs, with a ſingle channel on the circumference; its body is of a cartilaginous conſiſtence, of a dulliſh white colour; its upper part (Fig. 4) is covered with oval ſpots of the colour of lees of wine. Fig. 5 repreſents its under-ſide, in which are ſeen three elevations of the form of cups, two towards the proboſcis of the animal, and a third, by far the largeſt, near the channelled part of its body. This laſt is divided by ſeven ſmall whitiſh ribs, of which the middle one ſtands out a little from the reſt; it is by means of theſe different cup-like protuberances that it fixes itſelf very firmly on the body of different fiſh or marine animals, probably by cauſing a vacuum, and not by means of any glutinous and tenacious liquor: it is perhaps by the ſame means, that limpits and barnacles fix themſelves ſo firmly to rocks. Its proboſcis, which is ſituate between its two ſmall upper protuberances, has its extremity fringed with points, which are perhaps the mouths or organs by which it ſucks the blood of the fiſh on which it feeds. On its under-ſide may be ſeen, through the ſubſtance of the animal, ſeveral convolutions of inteſtines, which terminate in a ſmall and nearly ſquare reſervoir.

Though



Insects.

Though this animal is without legs, it is capable of progreſſive motion by means of its three protuberances which it alternately advances. It is alſo capable of deſcending to the bottom of the water, though its form would appear to render this by no means eaſy: the manner in which it performs this is by rolling itſelf up, and keeping itſelf in this poſition, by fixing its two upper protuberances on the poſterior and ſuperior part of its body, and by thus diminiſhing its ſurface it ſinks by its own ſpecific gravity. I found it ſticking to the body of a fiſh of the genus *diodon Linn.* which we frequently met with in our paſſage from Nootka to Monterey.

The ſpecies of *pennatula* * (Fig. 6), appears to me to have characters hitherto undeſcribed, on which account I have given a figure of it. Its body is of a cartilaginous ſubſtance, and a cylindrical form; its head, armed with two little horns of the ſame ſubſtance, preſents a ſpherical figure flatted at its anterior extremity. This part is covered with ſmall papillæ, ſome of which are viſible at (D), and which ſerve the purpoſe of ſmall mouths, by means of which this animal ſucks the blood of fiſhes, making its way as far as poſſible into the fleſh: the extremity of its body, which always projects from the fiſh, appears like the feathers of a pen; theſe feather-like ſubſtances ſerve as excretory veſſels, as I am well aſſured, for on making a ſlight

* Or rather of *lernæa*.

preſſure on the animal, from the greater part of theſe cartilaginous barbs iſſued ſmall drops of a very limpid liquor: at the baſe of theſe barbs, and beneath the body, are placed two large cartilaginous threads, of which I cannot imagine the uſe, for they are not univerſally met with in each individual. The circulation of its blood is readily obſerved, it forms a complete revolution about once in a minute. Theſe undulations I have endeavoured to imitate in the engraving. It is probable that this animal is only able to make its way into the bodies of different fiſh when it is very young, and when it has once buried itſelf there, having abundance of nouriſhment, its head increaſes conſiderably, and the two horns with which it is furniſhed neceſſarily form an obſtacle to its regreſs, which is a remarkable inſtance of the foreſight of nature, ſince it is deſtined to be nouriſhed at the expence of another. I found it at the depth of more than an inch and a half in the body of a *diodon* taken near Nootka.

Fig. 7, repreſents an inſect very nearly anſwering to the generic character of *oniſcus* of Linnæus. At (E) is a view of the upper part of its body, and at (F) of the lower. Its body is cruſtaceous, and of an opake white, with two round ruſt-coloured ſpots on the anterior part of its corſlet; two others, much larger, in the form of a creſcent, are on the *elytræ*; its ſhield is alſo of the ſame colour. The under part of the thorax is furniſhed with four pair of

of legs, the firſt and third of which are terminated with ſharp claws; the ſecond, from its form, ſerves it to ſwim with; the fourth is very ſmall, conſiſting of two membranaceous threads. Some ſcales, alſo membranaceous and very channelled, may alſo perform the office of legs: of theſe the two lower are the largeſt. Its belly is filled with vermicular inteſtines of the ſize of a hair; its mouth is placed between the firſt and ſecond pair of legs, and is of the form of a ſmall trunk placed between two lips joined only at the upper extremity. I found the inſect fixed in the ears of the *diodon*, to which the two former inſects were found adhering.

Fig. 8, repreſents an inſect of the genus *oniſcus Linn.* Its body is nearly of the form, conſiſtence, and colour, of the *oniſcus aſellus*, except that it is not divided by ſegments as this laſt is. It has a double tail three times as long as the body, from the inſertion of which at the hinder part of the body ſpring two legs, uſed chiefly by the animal in ſwimming upon its back. The inſect viewed on the lower part (H) preſents ſix pair of legs, the two firſt of which terminate in very ſharp and thick points; it makes uſe of the third to ſwim with, and to balance its body, together with that pair which is inſerted at the baſe of the tail; the fourth pair, and the largeſt of all, is armed with two very ſharp points, which the animal forces into the body of any fiſh on which it ſeizes; the two laſt pair are nothing more

than very finely divided membranes. Between the two firſt is ſituate its trunk, ſmooth and about half a line long; at the baſe of the third pair are two points of a horny conſiſtence, very hard, and firmly fixed: the two horns alſo below the large pair of legs are in like manner very firmly united to its body. I imagine it to be by means of theſe darts that it pierces the body of the fiſh on which it is found, and that then changing its ſituation, it finds means to introduce its trunk into the holes thus formed. When put into a glaſs it ſinks to the bottom and riſes again to the ſurface with the greateſt eaſe, advancing with the edge of its body and deſcribing curves. Its two long tails are very eaſily pulled off without the animal appearing to ſuffer any pain. This inſect was found in great quantities fixed on the body of the ſame *diodon* *.

Fig. 9, repreſents a leech of its natural ſize: it is of a whitiſh colour, and is compoſed of ſeveral rings, ſimilar to thoſe of the tænia. The ſuperior part of its head is furniſhed with four ſmall ciliated mamillæ, by which it takes in food: under each mamilla on both ſides is a ſmall oblong pouch, in form of a cup. Fig. 10, is a front view of it, exhibiting the four mamillæ. I found this leech

* This inſect appears to be rather a monoculus than an oniſcus; the head being a ſingle piece.

buried

buried about half an inch in a ſhark's liver, but am wholly ignorant how it got there *.

Fig. 11, repreſents the *oniſcus phyſodes* of Linnæus, which has already been very well deſcribed, but of which I have given a figure, becauſe I believe there has hitherto been no drawing of it. There are nine veſicles on each ſide laid like tiles on the lower ſurface of its rounded tail (P). This ſpecies of oniſcus was found by me in the ears of a new ſpecies of pleuronectes Linn. very frequently caught in the road of Monterey. M is an upper view of the animal, and N an under one, in which its fourteen feet are viſible.

Of all the inſects here delineated the moſt ſimple, and that the ſtudy of which has given me the greateſt pleaſure, is repreſented at Fig. 12. They conſiſt only of oval bodies ſimilar to a ſoap bubble, arranged in parties of three, five, ſix, and nine: among them are alſo ſome ſolitary ones. Theſe collections of globules, being put into a glaſs filled with ſea-water, deſcribed a rapid circle round the glaſs by a common movement, to which each individual contributed by ſimple compreſſion of the ſides of

* This animal, from the form of its *inſtrumenta cibaria*, comes very near to that which Gog ſuppoſes to be the cauſe of meaſles in ſwine. Both theſe ſpecies are referable to the genus *hirudo*, the characters of which as given by Linnæus ſtand in need of reformation.

its body; probably the effect of the reaction of the air with which they were filled. It is not, however, eaſy to conceive how theſe diſtinct animals (for they may be readily ſeparated without deranging their economy) are capable of concurring in a common motion. Theſe conſiderations, together with the form of the animal, recalled to my mind, with much ſatisfaction, the ingenious ſyſtem of M. de Buffon; and I endeavoured to perſuade myſelf, that I was about to be witneſs to one of the moſt wonderful phenomena of Nature, ſuppoſing that theſe molecules, which were now employed in increaſing or diminiſhing their number or performing their revolutions in the glaſs, would ſoon aſſume the form of a new animal of which they were the living materials. My impatience led me to detach two from the moſt numerous group, imagining that this number might perhaps be more favourable to the expected metamorphoſis. I was, however, miſtaken. Theſe I examined with more attention than the reſt, and the following account is of their proceedings alone. Like two ſtrong and active wreſtlers they immediately ruſhed together, and attacked each other on every ſide: ſometimes one would dive, leaving its adverſary at the ſurface of the water; one would deſcribe a circular movement, while the other remained at reſt in the centre; their motions at length became ſo rapid as no longer to allow me to diſtinguiſh one from the other. Having quitted them

them for a ſhort time, on my return I found them reunited as before, and amicably moving round the edge of the glaſs by their common exertions. I ſhall often think with pleaſure on my little molecules for the entertainment that they afforded me.

Natural hiſtory, in many of its departments but dry, would not, in my opinion, have ſo many attractions for thoſe who devote themſelves to it, if they were not ſo fortunate as to meet with objects that agreeably occupy their imagination.

The ſpecies of meduſa (if it do not rather conſtitute a new genus) which is repreſented in two different attitudes, figures 13 and 14, is nearly of the ſame ſhape as a bagpipe: it is merely a white tranſparent veſicle, furniſhed with ſeveral blue tentacles yellowiſh at their extremity; its long tail, which is alſo blue, appears to be compoſed of a number of ſmall glandulous grains, flattened and united together by a gelatinous membrane. The upper part of the veſicle exhibits a kind of ſeam with alternate punctures of three different ſizes; its elongated part, which may be conſidered as the head of the animal, is terminated by a ſingle trunk, the exterior edge of which is fringed with twenty-five or twenty-ſix tentacles much ſmaller than thoſe which originate from the inſertion of its long tail, and the number of which ſometimes amounts to thirty. By means of theſe laſt, the diameter of which it is capable of increaſing at pleaſure by forcing in a

little of the air from its body, it fixed itſelf to the ſide of the veſſel, in which I had placed it, in ſuch a manner as that the extremity of ſome of its tentacles occupied a ſurface of two or three lines from its body. The moſt moveable part of the veſicle is its elongation or the head of the animal, as it is by means of this that it performs its different motions."

The rounded ſubſtance, marked by the letter P, is ſituate in the centre of the larger tentacles, which are firmly fixed to the body of the animal near its tail; and is only an aſſemblage of a few minute gelatinous globules, from the middle of which ariſe other larger globules, with a ſmall peduncle, about the middle of which is fixed a curved bluiſh coloured body, which is repreſented magnified in two poſitions at R; the uſe of it I am wholly unacquainted with.

I met with this animal on the 18th of November 1786, about the 20° of latitude, and 179° eaſt longitude: it was found alſo in great abundance at the landing place of the Baſchi or Baſhee Iſlands, where alſo I took the following.

This ſingular animal conſiderably reſembles a little lizard; its body is of a firm, gelatinous conſiſtence; its head is furniſhed on each ſide with two ſmall gelatinous horns, of which the two hindermoſt are ſituate the furtheſt inward: its body is provided with four open fan-like paws, and ſome appendages near the inſertion of the tail, and terminates

like

like that of a lizard: the ridge of the back is divided the whole way down by a band of a deep blue; the reſt of the body, as well as the inſide of its paws, is of a bright ſilvery white. It appears to be very ſluggiſh in its motions, and when diſturbed by the finger merely turned itſelf belly upwards, ſoon afterwards reſuming its former poſition. Fig. 16 repreſents it reverſed. I caught it during a calm at the landing place on the Baſhee Iſlands.

DISSERTATION

ON THE NATIVES OF TCHOKA ISLAND, AND ON THE EASTERN TARTARS,

By M. ROLLIN, *M. D. and Surgeon of the Frigate* BOUSSOLE.

ON the 12th of July, 1787, we anchored in Baie de Langle, ſituate on the weſtern ſide of Tchoka or Ségalien Iſland. When we went on ſhore the next day, the natives preſſed round us, eager to give us thoſe marks of good will, which cauſed us to think very highly of their hoſpitality to ſtrangers.

Theſe people are very intelligent and honeſt, and having no diſtruſt about them, readily communicate with ſtrangers. They are of a moderate ſize, ſquat, and ſtrong built, with the muſcles of their bodies very exactly defined: their common height is five feet, and the greateſt does not exceed five feet four inches; but men of this ſize are very uncommon among them. They have all a large head, and a broader and more rounded face than Europeans; their countenance is animated and agreeable, though, upon the whole, it is deſtitute of that regularity and grace which we eſteem ſo eſſential to beauty: they

have large cheeks, a ſhort noſe rounded at its extremity, with very broad noſtrils: their eyes are lively, of a moderate ſize, for the moſt part black, though we ſaw ſome blue ones among them: their eyebrows are buſhy; their mouth of the common ſize, their voice is ſtrong, their lips are rather thick, and of a dull red; we remarked, that in ſeveral the upper lip was tattoed and tinged of a blue colour: theſe, as well as their eyes, are capable of every variety of expreſſion: their teeth are white, even, and of the uſual number; their chin is rounded and a little advancing; their ears are ſmall: they bore and wear in them glaſs ornaments or ſilver rings.

The women are not ſo large as the men, and are of a more rounded and delicate figure, though there is but little difference between the features of their faces. Their upper lip is tattoed all over of a blue colour, and they wear their hair long and flowing: their dreſs hardly differs from that of the men; the colour of the ſkin in both ſexes is tawny, and that of their nails, which they ſuffer to grow to a great length, is a ſhade darker than that of Europeans. Theſe iſlanders are very hairy, and have long beards, which gives, eſpecially to the old men, a grave and venerable air; theſe laſt appear to be held in much reſpect by the younger part of the inhabitants. The hair of their head is black, ſmooth, and moderately ſtrong; in ſome it is of a cheſnut colour: they all wear it round, about ſix inches

inches long behind, and cut into a bruſh on the top of their head and over the temples.

Their clothing conſiſts of a kind of ſurtout which wraps over before, where it is faſtened by little buttons, ſtrings, and a girdle placed above the haunches. This ſurtout is made of ſkin or quilted nankeen, a kind of ſtuff that they make of willow bark: it generally reaches to the calf of the leg, and ſometimes even lower, which for the moſt part renders the uſe of drawers unneceſſary: ſome of them wear ſeal-ſkin boots, the feet of which, in form and workmanſhip, reſembles the Chineſe ſhoe; but the greater number of them go bare-footed and bare-headed: a few indeed wear a bandage of bear-ſkin round the head; but this is rather as an ornament than a defence againſt the weather.

Like the lower claſſes of the Chineſe, they all wear a girdle, to which they hang their knife as a defence againſt the bears, and ſeveral little pockets, into which they put their flint and ſteel, their pipe, and their box of tobacco; for they make a general practice of ſmoking.

Their huts are ſufficient to defend them againſt the rain and other inclemencies of the air, but are very ſmall in proportion to the number of the inhabitants which they contain. The roof is formed of two inclined planes, which are from ten to twelve feet high at their junction, and three or four on the ſides; the breadth of the roof is about fifteen feet,

and

and its length eighteen: theſe cabins are conſtructed of frame work, ſtrongly put together, the ſides being filled up with the bark of trees, and the top thatched with dry graſs in the ſame manner as our cottages are.

On the inſide of theſe houſes is a ſquare of earth raiſed about ſix inches above the ground, and ſupported on the ſides by ſtrong planking; on this they make the fire: along the ſides of the apartment are benches twelve or fifteen inches high, which they cover with mats, on which they ſleep.

The utenſils that they employ in cooking their food conſiſt of an iron pot, ſhells, veſſels made of wood and birch bark, of various ſhapes and workmanſhip; and, like the Chineſe, they take up their food with little ſticks: they have generally two meals in the day, one at noon, and the other in the evening.

The habitations in the ſouth part of the iſland are much better built and furniſhed, having for the moſt part planked floors; we ſaw in them ſome veſſels of Japan porcelain, on which the owners appeared to ſet great value, probably becauſe they are not to be procured but with great trouble and at conſiderable expence. They cultivate no kind of vegetable, living only on dried and ſmoked fiſh, and what little game they take by hunting.

Each family has its own canoe, and implements for fiſhing and hunting. Their arms are bows,

javelins, and a kind of ſpontoon, which they uſe principally in bear-hunting. By the ſide of their houſes are the magazines, in which they lay up the proviſion which they have prepared and collected during ſummer for their winter ſubſiſtence. It conſiſts of dried fiſh, and a conſiderable quantity of garlic and wild celery, angelica, a bulbous root which they call *apè*, better known under the name of the yellow lily of Kamtſchatka, and fiſh oil, which they preſerve in the ſtomachs of bears, and other large animals. Theſe magazines are made of planks, ſtrongly and cloſely put together, raiſed above the ground on ſtakes about four feet high.

Dogs are the only domeſtic animals belonging to the natives of Tchoka; they are of a middling ſize, with ſhaggy hair, pricked ears, and a ſharp long muzzle; their cry is loud and not ſavage.

Theſe iſlanders are the only uncivilized people that we have viſited, if, indeed, they may with propriety be called uncivilized, who make uſe of looms; theirs, though ſmall enough to be eaſily portable, is a very complete inſtrument. They alſo prepare, by means of ſpindles, thread of the hair of animals, or the bark of willow, and the great nettle, from which they fabricate their ſtuffs.

Theſe people, who are of a very mild and unſuſpecting diſpoſition, appear to have commercial intercourſe with the Chineſe by means of the Mantchou Tartars, with the Ruſſians to the north

north of their iſland, and the Japaneſe to the ſouth: but the articles of trade are of no great conſequence, conſiſting only of a few furs and whale oil. This fiſh is caught only on the ſouthern coaſt of the iſland: their mode of extracting the oil is by no means economical; they drag the whale on ſhore on a ſloping ground, and ſuffering it to putrefy, receive in a trench, at the foot of the ſlope, the oil, which ſeparates ſpontaneouſly.

The iſland of Tchoka, called ſo by its inhabitants, named *Oku Jeſſo* by the Japaneſe, and by the Ruſſians, who are only acquainted with the northern part of it, *Ségalien Iſland*, comprehends, in its longeſt diameter, the whole ſpace between the 46th and 54th parallel.

It is well wooded, and mountainous towards the centre, but is flat and level along the coaſt, the ſoil of which appears admirably adapted to agriculture: vegetation is extremely vigorous here; foreſts of pine, willow, oak, and birch, cover nearly the whole ſurface. The ſea abounds with fiſh, as well as the rivers and brooks, which ſwarm with ſalmon and trout of an excellent quality.

The weather, during our ſtay here, was foggy and mild. All the inhabitants have an air of health and ſtrength, which they retain even to extreme old age; nor do I obſerve among them any inſtance of defective organization, or the leaſt trace of contagious or eruptive diſorders.

After

After having had much intercourſe with the natives of Tchoka iſland, which is ſeparated from the Tartarian coaſt by a channel, that we ſuppoſed formed a communication between the ſeas of Japan and Okhotſk, we continued to ſtand to the north; but the depth of water having gradually, and through the whole breadth of the channel, ſhoaled to ſix fathoms, M. de la Pérouſe thought it expedient, in order to avoid endangering the ſafety of the ſhips, to bear away to the ſouth, as the impoſſibility of reaching Kamtſchatka through this channel was clearly demonſtrated. But the continuance of the fogs, and the obſtinacy of the ſouth winds during the four months that we had been at ſea, rendered our ſituation very critical, and expoſed us in this enterpriſe to conſiderable hazard and much loſs of time.

The wood and water that we had taken in at Manilla being conſumed, we ſought for an opportunity of recruiting our ſtore, before attempting any new enterpriſe. The weather clearing up on the 27th of July, we were enabled to explore a large bay, in which we anchored: it offered to us a ſafe retreat from ſtorms, and an eaſy mode of procuring the ſupplies of which we ſtood in need. This bay is on the Tartarian coaſt, in 51° 29′ north latitude, and 139° 41′ longitude. We gave it the name of *Baie de Caſtries*.

The country is very mountainous, and ſo cover-

ed

Manners of the Inhabitants of the Bay de Castries.

ed with wood, owing to the luxuriance of vegetation, as to form one immenſe foreſt.

We found ſome inhabitants, the only ones that we had met with on this coaſt ſince our departure from Corea, at the bottom of the bay, by the mouth of a little river abounding in fiſh.

Theſe people are mild, affable, and, like thoſe of Tchoka, ſhew no diſtruſt of ſtrangers: they are moſt ſcrupulouſly honeſt, and manifeſt but little curioſity or deſire to obtain even thoſe articles that would be of the greateſt uſe to them.

In ſalutation they bend the body forward, and to ſhew more than ordinary reſpect, they kneel and bow their head almoſt ſo as to touch the ground.

There is but little regularity in the external organization of theſe people, and they ſeem to bear no analogy to their oppoſite neighbours of the Iſle of Tchoka, who are ſeparated from them by a ſtrait, in this place not more than ten or twelve leagues acroſs.

Theſe Tartars are inferior to the iſlanders in height, ſtrength, and regularity of features; their complexion is not quite ſo dark, and thoſe parts of their ſkin that are uſually covered, are white; their hair on their heads is more thinly ſcattered, as well as that on their chin and upper lip. Theſe differences in the conſtitution of the two people ſeem to point out an eſſential difference of ſpecies, ſince

they live in the ſame climate; and there is a ſtriking analogy, or rather ſcarcely any difference in their manners and modes of life.

The women are ugly, with very little of that characteriſtic mildneſs of countenance which uſually at firſt ſight diſtinguiſhes their ſex: they have a flat face, ſmall round eyes, large high cheeks, a great head, well-ſhaped neck, and the extremities of the body, though ſmall, yet finely proportioned.

The common height of the men is four feet nine or ten inches; the head is enormous compared to the body, the face is almoſt ſquare, the forehead ſmall, rounded, and depreſſed below; the eyebrows, which are faintly marked, are black or cheſnut coloured, as well as the hair; the eyes are ſmall, and level with the ſurface of the face; the eyelids ſo little divided, that when open they wrinkle at the corners; the noſe is ſhort, and ſo imperfect at the root as hardly to be diſtinguiſhed from the face; the cheeks are large and puffed, the mouth wide, the lips thick, and of a dull red colour; the teeth are ſmall and even, but very ſubject to decay; the chin nearly flat; the extremities of of the body are ſmall, and the muſcles but faintly marked. This diſproportion of their features and limbs is wholly inconſiſtent with elegance of form, and beauty of countenance; they are, accordingly the

the plaineſt and moſt puny race of men that I have ſeen in either hemiſphere. Although theſe Tartars, as well as the natives of Tchoka, have arrived at a conſiderably advanced ſtate of civilization and politeneſs, they are entirely without agriculture, and live in a very dirty manner: their chief food during ſummer is freſh fiſh, and in winter ſmoked fiſh, or dried on frames ſimilar to thoſe of our tenter-grounds. The whole proceſs of preparing the fiſh is as follows: their heads are firſt cut off, they are then ſplit, cleaned, and the back-bone is extracted; they are then hung up to dry, and afterwards packed up in bales, and ſtowed in magazines, ſimilar to thoſe of Tchoka Iſland.

Their fiſhing tackle conſiſts of a hook and line, a net, and a kind of ſpontoon, or ſtick pointed with iron.

They have two regular meals in the day, one about noon, and the other at ſunſet; their utenſils and manner of cooking are the ſame with thoſe of the natives of Tchoka: theſe articles they procure from Mantchou Tartary, and Japan.

One thing which ſurpriſed us was, to behold the avidity with which they devoured the raw ſkin of freſh fiſh, as well as the cartilaginous parts of the head: this, with train oil, ſeems to conſtitute their moſt favourite delicacy.

Both men and women are clothed with a veſt,

ſimilar to our carter's frock, which reaches as far as the calf of the leg, and is faſtened before with copper buttons. There is no difference between this garment and that of the inhabitants of Tchoka; the materials are fiſh ſkin, or nankeen, for ſummer, and fur for winter. The women adorn the bottom of this gown with rows of flat pieces of copper. They all wear a kind of drawers, or breeches, made in the Chineſe faſhion, and ſhort boots, like thoſe of the people of Tchoka: they have alſo a ring of horn or metal, on the thumb, and trinkets hanging from the ears and noſtrils.

I was not able to determine whether they acknowledged any chiefs, except the heads of families. The only domeſtic animals among them are dogs, of the ſame kind as thoſe of Tchoka, which they employ in winter to draw their ſledges.

The cuſtom, which many uncivilized tribes have of preſenting their women to ſtrangers, is not practiſed by theſe people. They appear to be held in great eſteem by their huſbands, and are not obliged to perform any outdoor work, their department being the regulation of the domeſtic economy, ſuch as bringing up the children, preparing the victuals, &c.

The umbilical cord is tied, as among us, immediately upon the birth of the infant, ſoon after which it is ſwathed nearly in the American manner:

the

the child is laid to ſleep in a baſket, or caſe of wood or birch bark.

The rigour of the climate obliges theſe Tartars to have both ſummer and winter houſes; the form and internal arrangement of which are very ſimilar to the deſcriptions already given of the habitations in Tchoka. The winter houſes are only remarkable in being ſunk about four feet below the ſurface of the ground, and having a porch, or corridor, at the entrance. Notwithſtanding their hard and diſagreeable manner of life, theſe people appear to enjoy while young a very good ſtate of health; but as they advance in years, they become ſubject to inflammation of the *tunica conjunctiva*, which frequently terminates in blindneſs. The general cauſe of this diſorder appears to be the dazzling of the ſnow, which covers the ground more than half the year, and the conſtant irritation of the organs of ſight by the ſmoke, with which their cabins are filled, as they are obliged to keep chiefly within doors during the winter, on account of the cold, and during ſummer, in order to be freed from the moſkettoes, which ſwarm in myriads in theſe high latitudes.

Cutaneous diſorders are very rare among theſe people, notwithſtanding their extreme want of neatneſs. I only ſaw one or two ſlight caſes of raſh, and a child, ſix years old, who had tinea; but I remarked among them no defective organization,

or any trace of the ſmall-pox, or the venereal diſeaſe.

The employments of both ſexes, their inſtruments for fiſhing and hunting, and their canoes, are not remarkably different from thoſe of the people of Tchoka: but the weakneſs of their conſtitution muſt incapacitate them from enduring the ſame hardſhips as theſe laſt, who are a far more robuſt race of men.

All theſe people appear to hold their dead in great veneration, and to employ the whole of their induſtry and ingenuity in procuring them an honourable burial. They are interred with their clothes on, and the arms and implements that they made uſe of when alive. The corpſe is depoſited in a coffin of the ſame form as ours, the ends of which are ornamented with ſilk ſtuffs, either plain, or embroidered with gold or ſilver. The coffin is then encloſed in a tomb four feet high, conſtructed of ſtrong planks or balks.

Comparative

Comparative Table of the inhabitants of Tchoka Iſland and the Tartars of Baie de Caſtries, meaſured in the ſame manner as is deſcribed in the Table of the comparative proportions of Americans.

	Iſland of Tchoka			Baie de Caſtries.		
	Feet.	Inches.	Lines.	Feet.	Inches.	Lines.
Ordinary ſtature of the men	5	0	0	4	10	0
Circumference of the head	1	10	4	1	9	0
Long diameter of Do.	0	9	8	0	9	0
Short diameter of Do.	0	5	8	0	5	4
Length of the upper extremities	2	1	6	2	1	0
Do. of the lower	2	8	0	2	6	0
Do. of the feet	0	9	5	0	9	0
Circumference of the cheſt	3	2	0	0	0	0
Breadth of Do.	1	1	4	0	11	0
Do. of the ſhoulders	1	8	0	1	3	0
Circumference of the pelvis	2	6	0	2	3	0
Height of the vertebral column	1	11	0	1	10	0
The only meaſure of the women that we were able to procure, is the circumference of the pelvis	0	0	0	2	2	10

OBSERVATIONS

By M. de Monneron, Captain of Engineers, and Engineer in Chief in the Expedition of M. de la Pérouſe.

ISLAND OF TRINIDAD.

At Sea, Oct. 17, 1785.

THE Iſland of Trinidad, ſituate in the ſouthern hemiſphere, a hundred and eighty leagues from the

coaſt of Braſil, remained uninhabited till the laſt war, when the Engliſh, it is ſaid, took poſſeſſion of it, doubtleſs, with the view of converting it into a ſtation, whence they might cruiſe with ſucceſs on the French, Spaniards, and Dutch: it was ſaid, that they had abandoned the iſland at the peace; the intention of M. de la Pérouſe was to aſcertain the truth of this. A little time after making the iſland we ſaw a Portugueſe flag on a riſing ground, at the head of a ſmall bay on the ſouth-eaſt ſide of the iſland.

M. de la Pérouſe having hoiſted out a boat, ordered me to go and endeavour to ſurvey the poſt. The officer commanding this expedition was forbidden to diſembark, unleſs he could do it without running any hazard. We came very near the ſhore, but were unable to land; we had an opportunity, however, of examining at a very little diſtance this eſtabliſhment. It is ſituate about a third of the way up a hill, facing a ſand bank that forms a creek in the ſouth-eaſt of the iſle: the weſtern ſide of this little opening is bounded by bluffs of bare rock, which, like the reſt of the iſland, are of volcanic origin: on the eaſtern ſide is a broad-baſed ſugar-loaf hill, about three hundred feet high, which adjoins to a kind of table hill, the diameter of which is much more conſiderable than that of the former, but in height it ſcarcely equals two thirds of it. There

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is on the ſand bank from forty-five to ſixty fathoms depth of water: hence the land riſes into a ſteep and very regular, though natural glacis, at the ſummit of which is a kind of platform, very ſloping on the ſide next to the ſea, and which, to make uſe of a technical term, I call *terre plein*; the inclination of this is ſo conſiderable as hardly to afford a ſhelter from the fire of a ſhip at the anchorage. I ſaw no parapet, though there probably is one in barbet. I looked as narrowly as I could for cannon or batteries, but ſaw no traces of them. On the terre plein were five or ſix huts, reſembling thoſe of the negroes on the ſugar plantations; of theſe one was conſiderably larger than the reſt, and ſituate near the ſalient angle of the terre plein. This fortification, if ſuch it may be called, reſembles a redan, one ſide of which is parallel to the ſand bank, and the other to a ravine, which is the boundary of the glacis in this direction.

This eſtabliſhment reſembles rather a reſort of banditti than a poſt occupied by a civilized nation. Except the natural obſtacles which render the approach to this iſland difficult and dangerous, there is nothing which can make a ſhadow of reſiſtance: I can alſo confidently affirm, that there is not a ſingle veſſel there of any deſcription; which induces me to think, that the Portugueſe have but very late-

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ly arrived here, or are very negligent of their eſtabliſhments *.

M. de Vaujuas, who landed on the iſland, brought back word to M. de la Pérouſe, that he eſtimated the number of perſons there at two hundred. For my own part I reckoned their numbers with great care, repeatedly counting thoſe who came within ſight, but I could not make out more than about thirty-three perſons on the brow of the hill, and thirty-ſix who were obſerving us from the platform: ſo that the reſt of the exiles to this rock had not curioſity enough to come within ſight of us. They told M. de Vaujuas, that they were ſupplied every ſix months with proviſion from Rio-Janeiro, and were relieved yearly.

As the bottom of the bay is probably rocky, it might be difficult for ſhips or frigates to bring their broadſides to bear on the poſt; but if the place remain in its preſent ſituation, I ſhould adviſe taking a ſafer anchorage to the ſouth-weſt, whence, in all likelihood, it would be eaſy to turn the poſt, which is on the ſouth-eaſt ſide of the bay, by mak-

* As the ſtrength of a poſt depends not only on its ſituation, but ſtill more on the numbers of its garriſon, I inquired of the governor of St. Catherine what was the ampunt of the Portugueſe troops at Trinidad; he replied, that he believed the poſt was occupied by a detachment of thirty-five or forty men.

ing a lodgment on the creſt of the hill, at the bottom of which is the platform that has been ſpoken of above.

On board the Bouſſole, Oct. 25, 1785.

(Signed) MONNERON.

ISLAND OF ST. CATHERINE.

At anchor, from the 6th to the 19th of Nov. 1785.

The Iſland of St. Catherine, ſituate on the coaſt of Braſil, in 27° 41′ ſouth latitude, is a Portugueſe eſtabliſhment, which for the laſt ſeventy years has been very little viſited by any other European ſhips than thoſe belonging to the mother country; there are, therefore, very few particulars of it to be met with in the publications of different travellers; and if the editor of Anſon's Voyage found the ſituation of the colony very different from what it was in the time of Frezier, we can repeat the obſervation on a compariſon of its preſent ſtate with its former at the period of Anſon's viſit. A circumſtance, that would of courſe induce a great alteration in its appearance, is the emigration of a great number of families from the Azores, made at the expence of government

vernment during the years 1752, 3, and 4, if I have been correctly informed. This ſudden increaſe of population would neceſſarily give an entirely new face to the colony; and as theſe new ſettlers turn out diligent farmers, and the ſoil is extremely fertile, population is probably rapidly advancing. The government, like that of all the Portugueſe colonies, is purely military.

We are unacquainted with the amount of the force kept on foot here in time of war; but, to judge from the particulars that were publiſhed when it was taken poſſeſſion of by the Spaniards, it ſhould be conſiderable. Theſe troops, however, made ſo miſerable a defence, that it would have been more to the honour of the Portugueſe nation if they had been fewer.

If an enterpriſe ſhould be planned againſt this part of Braſil, there might no doubt be found among the archives of Spain accurate documents as to the number of forts, the particular ſtrength of each, and the mutual aid that they are capable of affording to one another.

The Portugueſe are in general not remarkable for their ſkill in connecting military poſitions; but here my own obſervations convinced me, that there is hardly any communication at all between their different poſts, ſo that the weakneſs of the colony is in proportion to the number of the forts. I only

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ſaw three that were worthy of this name, and though built within ſight of each other, they ſeem conſtructed one to be demoliſhed or ſtormed on the firſt attack, and the others to look quietly on, and ſurrender immediately after. The rules of the art, therefore, demand that theſe three forts ſhould be reduced to one, that the expences of keeping up the two abandoned and diſmantled ones, ſhould be appropriated to the enlargement of the third, and that the three garriſons ſhould be conſolidated into one. If inſtead of three forts there were a dozen, the reſiſtance of the colony would be ſtill leſs effectual, except the preſent bad ſyſtem of defence ſhould be entirely given up *.

The road, which is only expoſed to the north-eaſt winds, is ſheltered on the eaſt by the Iſland of St. Catherine, on the weſt by the continent; and on the ſouth by the iſle and continent, which approach ſo near to each other as to leave between them only a ſtrait not three hundred toiſes acroſs. Its entrance

* In order that the reader may have an exact idea of the ſituation of theſe forts, it may be remarked, that they form nearly an equilateral triangle, the baſe of which faces the north. That to the eaſt ſtands on the north-eaſt point of the Iſland of St. Catherine's, within about a quarter of a league of Parroquet Iſland: that on the weſt, which is the moſt conſiderable, is on an iſlet near the continent; and the third is on the largeſt of the two little iſlands which are called *los Ratones*.

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is incapable of being by any means protected againſt ſhips of war of any deſcription. Debarkation is for the moſt part very practicable along the ſhore of the road; and a ſtrong current, according to the time choſen for landing, may be a conſiderable aſſiſtance or a troubleſome obſtacle.

The extent of the road is ſo great, that though the forts are mounted with cannon of a large calibre, veſſels may anchor very commodiouſly, and in perfect ſafety, beyond the range of their ſhot.

The principal fort, which in fact is only a large cloſe battery, is ſituate on a little iſle, of a moderate height above the ſea, about three hundred and fifty toiſes from the main land, and oppoſite to a rideau much higher than itſelf. At about a third of the height of the rideau, the fort is ſo completely commanded as to allow an enemy to obſerve every thing that is going forwards, and to ſee from head to foot thoſe who ſerve the guns. I am perſuaded, that from this poſition the garriſon might be annoyed by muſketry; but a ſingle mortar, or even a couple of howitzers, which might very eaſily be dragged up the hill, would be ſufficient to command an immediate ſurrender. In a word, this fort is by no means capable of a regular defence: it has no bomb-proof caſemates, for want of which its inſular ſituation is ſo diſadvantageous, that though the garriſon was three to one compared with the beſiegers, it would be by

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no means difficult to force it to yield at diſcretion; the ſituation of this fortreſs being ſuch as to render it impoſſible to occupy the height by which it is commanded.

This fort is, however, the poſt of honour, and would be the head quarters of the general officer who commands in this department; for in time of peace he reſides at *N. S. del Deſtero*, which is a perfectly open town, having no defence except a ſmall battery in barbet on the Iſland of St. Catherine, at the eaſtern point of the little ſtrait mentioned above, behind which the town lies. The garriſon of the principal fort, at the time of our arrival, was compoſed of fifty men, ill clothed and badly paid, commanded by a captain.

The general officer, who was in command when the Spaniards, ſome years ago, made themſelves maſters of St. Catherine, was not taken in his fort, and was afterwards called before the council of war to anſwer for his cowardly conduct. But, even if he had ſhut himſelf up within the fortifications, I queſtion whether the affair would have turned out better for the Portugueſe. The ſize of the fort was ſuch as to have admitted only a ſmall part of his force, and he would probably have been obliged to capitulate on the firſt or ſecond day of attack, and to include in his capitulation all who were under his orders, to which they would doubtleſs have readily acceded.

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The Portugueſe, however, had no other alternative, but that of uſeleſsly attempting to defend their forts, or of taking the field.

I am not ſufficiently acquainted with the country, or the reſpective force of the two powers, to determine whether this conduct would have been attended with any probability of ſucceſs; it is, however, my opinion, that in conſequence of the mutual hatred of the two nations, the coloniſts would have ſubmitted to the ruin of their plantations by the enemy, and the waſting of their ſtores by their friends. Very little of the land is cultivated, except in the immediate vicinity of the ſea, ſo that it could not long maintain two hoſtile armies of licentious pillagers.

It would upon every account be impolitic in France to invade this part of the Portugueſe ſettlement, unleſs ſhe had views of permanent eſtabliſhments here, and might hope by a treaty of peace to retain her conqueſts. This circumſtance, however, would infallibly excite the perpetual jealouſy of the Spaniards, who prefer the neighbourhood of their natural enemies the Portugueſe, to that of their beſt friends and moſt faithful allies.

All hoſtile attempts, therefore, of France in this quarter ought to be confined to a *coup de main*, which might be beſt effected by cruiſers, that ſhould direct their chief efforts againſt the poſt

occupied for the convenience of the whale fiſhery, eſpecially if our intelligence is to be relied upon, that the force of this place continues, even in time of war, on a peace eſtabliſhment. The probable plunder, however, would ſcarcely cover the expence of the armament, except the Portugueſe ſhould chooſe to ranſom their fiſhing poſt, or government ſhould allow a certain ſum for the deſtruction of the veſſels and utenſils, which are public property, ſince the Portugueſe government grants to a company the excluſive privilege of the whale fiſhery.

This eſtabliſhment is at the extremity of the creek called *Bueno Porto*, which forms part of the great road, and where ſhips may anchor in perfect ſecurity from every wind.

On board the Bouſſole, Dec. 15, 1785.

(Signed) MONNERON.

CHILI.

At anchor off Talcaguana, in Conception Road, from Feb. 14 to March 17, 1786.

Although the family compact exiſting between the crowns of France and Spain ſeems to render

uſeleſs any military reflections, which our continuance at Chili gave us an opportunity of making on the political ſtate of that part of the Spaniſh dominions; yet, as this laſt mentioned ſtate may probably decay and fall to pieces, it may well happen, that theſe remarks, though of but little uſe at preſent, may at ſome future period be of great importance. In this memoir it is not ſo much my intention to diſplay the virtues and vices of the Spaniſh ſyſtem of colonial adminiſtration, as to point out the force or weakneſs which reſult from it.

The kingdom of Chili, ſituate in South America, is bounded on the weſt by the South ſea; on the eaſt, it touches the governments of Buenos Ayres and Paraguay; on the north it extends to the frontiers of Peru, from which, however, it is ſeparated by vaſt deſerts; and on the ſouth to Patagonia. This extenſive country is in ſeveral parts cut and croſſed by ſome of the higheſt mountains in the world.

St. Jago, the capital of Chili, is the reſidence of the governor and commander in chief; it is ſituate about thirty leagues from the coaſt, and its neareſt port is Valparayſo. This province is ſubdivided into ſeveral governments, and the city of Mocha, diſtant three ſhort leagues from Talcaguana, is the reſidence of the military commander of the ancient diſtrict of Conception, which was deſtroyed by an earthquake

earthquake in 1751. At the time of our arrival, Don Ambroſio Higuins, camp-major of this department, was occupied in concluding a treaty of peace with the Indians bordering upon thoſe who are called the Friendly Indians, but who, notwithſtanding this appellation, had been perſuaded into a war by the Indians of the Cordilleras, who are the braveſt and moſt warlike of any of the tribes of South America. The military manœuvres of an able commander would conſiſt in taking a poſition between his allies and his enemies, ſo as to hinder the progreſs of diſaffection, and thus have fewer enemies to combat; but notwithſtanding the wiſdom of the Spaniſh meaſures, the unconquerable ſpirit of the Indians of the Cordilleras, the continual revolts of the allied Indians, and the frequent inſurrections of thoſe who are called ſubjects, are cauſes ſo powerful, and ſo conſtantly in action, as greatly to enfeeble, and perhaps unexpectedly to deſtroy the Spaniſh power in Chili. Conſequently every expedition fitted out in Europe againſt the province of Chili, which ſhall not have for its object that which I ſhall ſoon ſpecify, will not only fail to cover its expences, but will inevitably be attended with immenſe loſs.

It ought to be kept conſtantly in mind, that the general ſpirit, which appears to influence the Spaniſh colonies, is prevalent in Chili, and that

the coloniſts are either farmers or inconſiderable retail merchants; ſo that although Chili produces in fact a great quantity of gold, very little of it would fall into the hands of an invader, but he would find abundance of proviſion, ſuch as bread, wine, butcher's meat, &c. He could, indeed, only avail himſelf of theſe reſources while he continued on ſhore. The force that could be brought into the field to oppoſe the landing of an enemy is ſo inconſiderable, as hardly to deſerve notice, and a debarkation in the road of Conception, which is one of the beſt in Chili, might be effected in any part of it without oppoſition, except from two or three batteries, the principal of which is upon the beach, and the reſt might eaſily be turned by a ſmall body of troops which could be puſhed on ſhore out of the reach of their ſhot. The object of theſe batteries is not to hinder an invaſion, but merely to protect the merchant ſhips which trade between Chili and Peru, againſt the enterpriſes of pirates, who might otherwiſe make prize of them while at anchor off Talcaguana, not a cable's length from the ſhore. A landing upon the beach of Conception bay might therefore, probably, be completed without running any riſk, either of men or ſhips: thence a ſmall number of regular troops might eaſily reach Mocha, which, as I have already obſerved, is only three ſhort leagues from Talcaguana, and the line of march would be through

through a large ſandy plain, not admitting of any oppoſition being made till within a third of a league of that city, which is ſituate on a plain ſtill lower than the firſt, and a quarter of a league from the river Biobio. The richeſt citizens of this town have no moveables of any value, and at firſt ſight it would be evidently an exceſſive inhumanity to demand any contribution. The whole advantages, then, of a deſcent conducted in this manner, would be confined to an incurſion of three leagues, and it would be adviſable for the enemy to loſe no time in regaining his ſhips, for in a few days the camp-major would find himſelf at the head of an army of fifteen thouſand men, and, however ſmall his military talents might be, if he have the leaſt ſpark of honour, it would be impoſſible to force him to a capitulation: he would eaſily ſurround an enemy in the open field, and haraſs them by a body of cavalry far more numerous than the whole body of troops that could be ſent from Europe on ſuch an expedition: his ſuperior acquaintance with the paſſes would render an attempt to ſeize the heights ſcarcely practicable, ſo that the wiſeſt, or rather the only conduct to purſue would be to retreat. But one of the moſt certain methods of bringing on the ruin of the Spaniſh intereſt in Chili is to form alliances with the Araucos and Taucapel Indians: theſe would ſoon be joined by the Cordilleras; and thoſe whom

the Spaniards call friends and allies would without delay enter into the confederacy. By the aſſiſtance of European officers, and European arms, this league would become ſo formidable to the Spaniards, as to induce them, for fear of their lives, not to await the ruin of their eſtabliſhments, and the devaſtation of their ſettlements, but to abandon every thing, and retire to Peru.

It will readily be perceived, that this idea is capable of great extenſion, and that it requires an acquaintance with a variety of circumſtances; but the period when it may be of uſe to France is ſo diſtant, that it is ſufficient at preſent merely to point it out.

On board the Bouſſole, March 30, 1786.

(Signed) MONNERON.

EASTER

EASTER ISLAND.

At anchor in Cook's Bay. Latitude 27° 11′, Longitude weſt of Paris 111° 55′ 30″.

This iſland, from its poſition, at a diſtance from all the common tracks of navigators, from its abſolute privation of wood and water, and from the manners of its inhabitants, who are very eager to receive, but are incapable of any return; though it may offer an extenſive field for the ſpeculations of naturaliſts and moraliſts, cannot in any degree intereſt the different maritime powers of Europe.

On board the Bouſſole, April 12, 1786.

(Signed) MONNERON.

SANDWICH ISLANDS.

At anchor. May 29, 1786. Latitude 20° 34′, Longitude weſt of Paris 158° 25′.

If I had to compoſe a memoir on the advantage of the poſition of theſe iſlands under various points

of view, I ſhould be under the neceſſity of looking for documents in the account of Cook's third voyage; but though the utility of ſuch diſcuſſion was demonſtrated, it is evident that it would be carried on to greater advantage at Paris, than on the open ſea.

On board the Bouſſole, June 5, 1786.

(Signed) MONNERON.

BAIE DES FRANÇAIS.

Situate on the north weſtern coaſt of America, latitude 58° 38'. At anchor in different parts of the Bay, from July 2 to Aug. 1, 1786.

The impoſſibility, in my opinion, of eſtabliſhing to any good purpoſe a French factory in this bay, would render all diſcuſſion of the ſubject embarraſſing on my part; I have therefore learned with great ſatisfaction, from a memoir which M. de la Pérouſe has had the goodneſs to communicate to me, that he has diſſuaded government from any ſuch ſettlement, at leaſt till the period of his return to France. I ſhall then be ready to produce the documents neceſſary for the diſcuſſion of this matter more at large; and if it ſhould be an object worthy the attention of government, it will be

very eaſy to demonſtrate its advantages and inconveniencies.

The inclemency of its climate, and its few reſources, its prodigious diſtance from the metropolis, the competition of the Ruſſians and Spaniards, who are much more favourably ſituate for the commerce of theſe regions, ought to diſſuade every other European power from forming any eſtabliſhment from Monterey to Prince William's Sound. Beſides, it would be neceſſary firſt of all, at leaſt before the formation of an eſtabliſhment, to eſtimate the expences and profits, and the number of perſons to be employed. The knowledge of theſe circumſtances is eſſential to the ſafety of the adventurers, and the ſtores to be entruſted to them, both againſt the natives of the country and the enemies of the commerce of France.

On board the Bouſſole, Dec. 19, 1786.

(Signed) MONNERON.

HARBOUR OF MONTEREY.

Situate on the north weſt coaſt of America, latitude 36° 38'. At anchor, from September 15 to 24, 1786.

There will probably elapſe one or two generations, before the Spaniſh eſtabliſhments, ſituate to the north of the Peninſula of California, will attract the notice of the great maritime powers of Europe. The preſent poſſeſſors will not for a long time to come found colonies there capable of making any great progreſs. Their zeal, however, for the propagation of the faith has already appointed ſeveral miſſions; but in other reſpects they are of ſo little importance, that even privateers will not think it worth their while to diſturb the pious exerciſes of theſe eccleſiaſtics.

With the view, doubtleſs, of favouring the preſidency of Monterey, the galleon, for ſeveral years paſt, on its return from Manilla to Acapulco has been obliged to put into this port. There is, however, ſo little occaſion for coming to anchor here, that even in times of peace this veſſel frequently prefers to proceed on its voyage without ſtopping, and pay a certain ſum by way of indemnification.

In time of war the commander of the galleon would with more certainty avoid this route, if the Spaniards imagined, that any of the enemy's cruizers were off this port.

The land in the neighbourhood of Monterey, though dry, appears capable of being cultivated to great advantage, of which we had proofs in the goodneſs and abundance of European vegetables which are raiſed there. Butcher's meat is alſo of an excellent quality. It is therefore certain, that from the convenience of the harbour, if this ſettlement ſhould ever become flouriſhing, it would prove as good a place of refreſhment as any in the world for European veſſels; but it will be time enough to enter upon political ſpeculations with regard to this harbour, when the Europeans eſtabliſhed on the north-eaſt of this continent ſhall have extended their ſettlements to the north-weſt coaſt; an event that is not likely to be very ſoon accompliſhed.

On board the Bouſſole, Dec. 24, 1786.

(Signed) MONNERON.

MEMOIRS

CONCERNING MANILLA AND FORMOSA,

By M. de la Pérouſe.

MANILLA.

In that part of my journal relative to Manilla, I have endeavoured to explain my ideas reſpecting the new company, which has juſt been eſtabliſhed in Spain; but it will demand a particular memoir, to ſhew the great eaſe, with which this colony might be taken poſſeſſion of by an enemy. The Spaniſh poſſeſſions in the Philippines are confined to the ſingle iſland of Luconia, which is indeed very conſiderable, and contains about nine hundred thouſand inhabitants well ſkilled in trade and agriculture. Theſe people deteſt the Spaniards, by whom they are grievouſly oppreſſed and deſpiſed; and I am perſuaded, that any nation, that ſhould furniſh them with arms, might readily excite an inſurrection in the iſland. The only tie, which ſtill attaches them to their conquerors, is that of religion. The greater number of the natives of Luconia are very orthodox and enthuſiaſtic Chriſtians; ſo that no nation could firmly eſtabliſh itſelf in this iſland, except it reſpected their churches, their prieſts, and, in ſhort, every thing relating to their religious worſhip; and this might be done with the greater ſafety, as moſt of the pariſhes are at preſent ſupplied by Indian

prieſts,

prieſts, who in their hearts bear the ſame hatred to the Spaniards, as glows in the breaſts of the reſt of their countrymen.

The bay of Manilla is open to every kind of veſſel, and can only be defended by ſhipping; ſo that in any expedition againſt this colony, there muſt be a decided ſuperiority of naval force.

The fortifications of the place, though regular, and kept in good repair, could only retard a few days the capture of the town, which has no chance of relief from Europe or elſewhere.

The garriſon is compoſed of a ſingle mulatto regiment, a corps of artillery of two hundred men, and a hundred and fifty dragoons; but theſe are only American troops: and though the Spaniards affect to believe, that theſe may be compared to the ſoldiers of Europe, I am ſo fully perſuaded of the contrary, that with fifteen hundred regulars I ſhould not ſcruple to become perſonally reſponſible for a victory over twice their number.

The militia of the iſland may form a body of eight thouſand men, and keep the field, as they did during the war of 1760, after the Engliſh had made themſelves maſters of the town of Manilla: but circumſtances are very different at preſent, and it would be eaſy to oppoſe the reſt of the iſland againſt that part of it which ſhould declare for the Spaniards; if, indeed, it were not far more probable, that the militia would refuſe to march, eſpecially if means could

could be found to gain over ſome of the Indian prieſts, and perſuade them that the invaders were as good Catholics as the Spaniards.

In ſhort, the conqueſt of Manilla appears to me ſo eaſy and certain, with a ſuperiority at ſea, and a land force of five thouſand men, that I ſhould greatly prefer this expedition to one againſt Formoſa, and I think that I could certainly anſwer for its ſucceſs. But the Spaniards are rather to be conſidered as good and faithful allies than as enemies; and I ought rather to ſhew, that this colony can be of no uſe in a war upon the continent of India, placed as it is in the Chineſe ſeas, that can only be navigated with the monſoons. It is impoſſible, that the commander of a French ſquadron ſhould ever think of refitting here, for the Iſle of France, which, on account of its great diſtance from India, is in general ſo detrimental to military expeditions, would be a hundred times more advantageous.

The little commerce carried on at Manilla would render it almoſt impoſſible to procure any ſupplies of proviſion, becauſe the inhabitants cultivate only a quantity juſt ſufficient for their own conſumption. It might, however, be poſſible, to obtain a few cargoes of rice, ſome cordage of the country, which is, however, very inferior to that of Europe, and a few maſts; but it would be abſolutely neceſſary to convey theſe articles in our own veſſels, and not to imagine,

imagine, that they would be ſent from Manilla on a ſimple order; and as the Chineſe ſeas are only navigable in the direction of the monſoons, it will be neceſſary to foreſee at a great diſtance of time all the ſtores that would be wanted, beſide keeping in mind, that the veſſels on their paſſage from Manilla would have to purſue a track, which would be very likely to be infeſted by enemies; on which account, it would be abſolutely neceſſary to detach a convoy for their protection.

I am of opinion, to take an example from the laſt war, that the armament of M. de Suffrein was of the greateſt advantage to the colony of Manilla, becauſe it occupied the whole force of the enemy, and hindered them from undertaking any expedition; and that Manilla, on the contrary, could have been of no ſervice to him, except by a loan of piaſtres: but as theſe are not a production of the country, they muſt have been ſent for from Mexico, the government of which makes a point of never ſending more than is ſufficient for the moſt urgent wants of the colony.

It is computed, that the whole iſland of Luconia contains no more than twelve hundred Creolian or European Spaniards; and it is remarkable, that not a ſingle Spaniſh family has laſted four generations; whereas the population of the natives has increaſed ſince the conqueſt, becauſe this country does not,

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like America, contain thoſe deſtructive metals, the mines of which have ſwallowed up ſeveral millions of men in every generation. A ſmall quantity of gold is indeed found in this iſland among the ſand of the rivers, but the labour of collecting it is by no means equal to that of common labourers. The Spaniſh ſovereignty in the ſouthern Philippine Iſlands is little more than nominal, ſimilar to that of the king of Sardinia over Cyprus and Jeruſalem, or of the king of England over France. They have, indeed, a few preſidencies in Mindanao and the neighbouring iſlands, but their limits are not more extenſive than thoſe of Oran and Ceuta, on the coaſt of Africa.

FORMOSA.

If you have been able to devote a few moments to the peruſal of that part of my journal relative to Manilla, and my voyage to the coaſt of Formoſa, you will have ſeen, that I anchored before the capital of that iſland, oppoſite to the old fort of Zealand; but the ſand banks, which border the whole of the coaſt, did not allow our veſſels to approach nearer the place than a league and a quarter. I did not chooſe to ſend a boat on ſhore, without being able to protect it by the cannon of the ſhip, leſt it ſhould be detained, on account of the war which then exiſted between the

the colony and its metropolis. M. d'Entrecaſtaux had detached the Sylphide to Manilla, to deſire me to navigate with circumſpection to the north of China, as the ſlighteſt alarm on the part of the Chineſe might be injurious to negotiations which he had in charge. I muſt confeſs, that I was not much influenced by this motive, being convinced that more is to be obtained from the Chineſe by fear, than by any other means; but I knew, that in ſending a boat on ſhore at Taywan, the moſt fortunate circumſtance would only be the procuring of ſome freſh proviſion; and even if the officer were allowed to land, his total ignorance of the Chineſe language would hinder him from gaining any intelligence. On this account I did not think it worth while to hazard a boat: I, however, made it my buſineſs to inquire, both in China and at Manilla, ſeveral particulars concerning Formoſa; and I think that I am fully juſtified in aſſerting, that two frigates, four corvettes, five or ſix gun-boats, together with tranſports for four thouſand men, and their requiſite ſtores, would enſure the ſucceſs of this expedition. A ſmaller force would not be employed by a prudent commander, though perhaps twelve or fifteen hundred men might be ſufficient to thoſe enterpriſing leaders, who, having nothing to loſe, truſt every thing to the event of war, without conſidering how humiliating it is for a great nation to be defeated by a people much its inferior in courage, arms, and

military ſcience; but, in my opinion, far ſuperior to the mean opinion which is generally entertained of them by Europeans. The empire of China is ſo vaſt, that there is probably a great difference between the inhabitants of its northern and ſouthern provinces. Theſe laſt are very cowardly, and as the Europeans are only acquainted with Canton and its vicinity, they have with reaſon entertained a very light opinion of the military talents of the Chineſe; but the inhabitants of the north, the Tartars, who conquered China, ought not to be confounded with that contemptible populace, with whom alone the Europeans have intercourſe: however, though much ſuperior to the ſouthern Chineſe, they are not, I think, to be compared even with our worſt troops; they are not ſo inferior indeed in courage as in their mode of fighting.

The Chineſe, who attach great importance to their eſtabliſhments in Formoſa, keep up a garriſon in that iſland of ten thouſand Tartars: I reckon very little of their artillery, their forts, and even the poſts in which they have entrenched themſelves; but an enterpriſe of ſo great importance as this ought not to be undertaken without an almoſt abſolute certainty of ſucceſs. The Formoſan coaſt is flat, ſo that it can only be approached by ſmall veſſels: gun-boats, therefore, drawing ſeven or eight feet of water, would be abſolutely neceſſary to cover a deſcent. The firſt operation ſhould be

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to take poſſeſſion of the Peſcadore Iſlands, where there is an excellent harbour, and the channel which ſeparates them from Formoſa may be readily croſſed in five or ſix hours: the proper time for this undertaking would be in the month of April, May, or June, for in July and Auguſt the Chineſe ſeas are expoſed to a dreadful kind of hurricane, called the *tiphon*.

If this expedition were planned in concert with the Spaniards, the harbour of Manilla would greatly contribute to enſure ſucceſs, becauſe from this port the ſouthern part of Formoſa is at all times eaſily acceſſible, and proviſion and ſtores might be procured from the Philippines, if the loſs of veſſels, or any unexpected reſiſtance, might render ſupplies neceſſary.

The iſland of Formoſa is of great importance, and a nation which ſhould obtain poſſeſſion of it, and get a firm footing there, by the eſtabliſhment of a ſtrong garriſon, and a ſquadron of men of war at the Peſcadore iſlands, would obtain from the fear of the Chineſe every thing that it might chooſe to demand. I am perſuaded, that, if the Engliſh had not been engaged in different wars, which have demanded all their force, they would already have made this conqueſt, which is of more conſequence to them than to any other nation, becauſe their general uſe of tea has in a manner rendered them tributary to China, as this leaf is now become an article of

the firſt neceſſity in the Britiſh iſlands. I ſhould not be ſurpriſed to ſee, in a ſhort time, theſe Europeans reduced in China to the ſame conditions that the Dutch are in Japan. Such an event would be of little importance to France and the reſt of Europe, whoſe trade with China is not worth any ſuch humiliations; but the Engliſh would be driven to the neceſſity of ſubmitting or declaring war againſt them; the latter of which they would doubtleſs prefer.

It is ſufficiently well known in Europe, that the eaſtern part of Formoſa is inhabited by the natives, who do not acknowledge the ſovereignty of the Chineſe; but the weſtern part is extremely populous, becauſe the Chineſe, oppreſſed and haraſſed in their native country, are always ready to emigrate. I have been informed, that the ſettlers, who have gone over to this iſland ſince its conqueſt by the Chineſe, amount to five hundred thouſand, and that the chief town contains fifty thouſand inhabitants: as theſe are laborious and induſtrious, their numbers would be of no diſadvantage to the conquerors. But it ought not to be forgotten, that theſe people, naturally mutinous, would require a greater force to retain them in obedience than to conquer them; and if, after having taken poſſeſſion of the iſland, the keeping up and recruiting a garriſon of three or four thouſand men, at ſuch a great diſtance from

the mother country, ſhould be neglected, there would be great danger of a general maſſacre.

The productions of this iſland would, probably, in time, defray the coſts of its eſtabliſhment; but the firſt years would be very expenſive, and a miniſter would ſee with regret conſiderable ſums remitted to this part of Aſia without the hope of immediate profit. The trade with China would at firſt be interrupted; but, in my opinion, it would ſoon be reſumed with greater ſpirit than before, becauſe permiſſion might be gained to viſit the ports of the province of Fokien, the coaſt of which forms one ſide of the channel of Formoſa; whence might be obtained the articles of Chineſe commerce, eſpecially the moſt important, tea, which is chiefly conſumed in England, Holland, and the United States of America.

I may therefore, I think, conclude this memoir, by enſuring the poſſibility of conquering Formoſa by the above-mentioned means, eſpecially if we were in alliance or aſſiſted by the Spaniſh in Manilla; but it is not equally clear to me, whether ſuch a conqueſt would be of any eſſential advantage to France, and it would be far better never to have conquered this country, than to allow ſo important an acquiſition to fall to decay.

In the harbour of St. Peter and St. Paul, Sept. 10, 1787.

(Signed) MONNERON.

MEMOIR

ON TEREBRATULÆ, OR POULETTES,

(Anomia of Linn.)

With the deſcription of a ſpecies found in the ſeas of Eaſtern Tartary; by M. de Lamanon, Member of the Academy of Turin, and Correſpondent of the Academy of Sciences.

PETRIFIED Terebratulæ, or Anomiæ, have been long known, and it was imagined that this kind of ſhell no longer exiſted in the ſea: this was, however, a miſtake.

The anomia is an inhabitant of every region, and has exiſted in every age, having been contemporary with thoſe ſhells, the race of which is at preſent annihilated, and which peopled the waters of the antient world: it has ſurvived them; and after having eſcaped the aſtoniſhing revolutions of the globe, which have deſtroyed by far the greateſt number of the fiſh, and the teſtaceous and cruſtaceous animals, it has ſeen thoſe ancient ſpecies ſucceeded by new ones, formed in our preſent ſea. The foſſil anomia is found in the mountains of every country, and moſt frequently among the remains of the *belemnites*, the

cornua

cornua Ammonis, the *hyſterolithes*, and other inhabitants of the ancient ocean.

The living anomia is found among the ſhells of late formation in both hemiſpheres.

Aldrovandus, under the name of chamea, has given the figure of a true anomia fiſhed up from the ſea. He wrote as was cuſtomary at the end of the ſixteenth century. It was not till the year 1748 that we became acquainted with foſſil anomia, Volſterdorf being, I believe, the firſt who mentioned it in his *Syſtèma Minéral*, printed in that year. The learned tranſlator of Lehman ſays in a note (book iii, page 382) that M. de Juſſieu ſhewed him a ſhell ſimilar to the anomia, which had been found in the ſea near Marſeilles. M. de Bois-jourdain of Paris, and Mr. Schmidt of Berne, have been mentioned as each poſſeſſing in their rich cabinets a ſpecimen of an anomia. M. Joubert gave a deſcription a few years ago in the *Mémoires de l'Académie*, of the terebratulæ found in the ſea near Montpellier. Theſe are in general ſmaller than the foſſil ones. I have ſome in my cabinet, which come from the ſea near Malta, as large as thoſe that are found imbedded in the mountains; I have alſo ſeen other ſpecimens in the cabinet of natural hiſtory belonging to the univerſity of Turin, which were fiſhed up from the ſea at Nice. They are alſo found at Leghorn, and M. de Luc was in poſſeſſion of one more than twenty-five years ago: "It is," ſays he, "of

a different ſpecies from that which is commonly found foſſil," (*Lettres ſur l'Hiſtoire de la Terre et de l'Homme*, firſt letter, page 238). They are alſo natives of the Adriatic ſea; the ab. Fortis, who diſcovered them there, ſays, that they keep at the depth of about two hundred feet in the neighbourhood of the harbour of Siberico; and that they are alſo found at a ſtill greater depth in the caverns whence coral is procured. This ſpecies of terebratula has both its ſhells convex; it is lightly waved in the direction of its length and breadth: it is conſidered by him as a new ſpecies, and he adds, that it conſiderably reſembles the foſſil terebratula deſcribed by baron von Hupſch, of which he has given a figure (plate iv, no. 16 and 17). That from Mahon was firſt known a few years ago at Paris, as well as thoſe which are natives of the Indian ocean, of which one ſpecies has a ſmooth ſhell and another a ſtriated one. They have alſo been met with in the Norwegian ſeas, and M. de Bougainville fiſhed one up in the ſtraits of Magellan.

Foſſil anomiæ have been found in a great number of places, and the varieties that they preſent are alſo very numerous. I have collected in my travels near thirty ſpecies, the laſt of which I found on the north-weſt coaſt of North America at Port des Français. On comparing the foſſil terebratulæ with the living ones, I met with ſeveral perfectly ſimilar. There are, however, marine ones, which

which have not yet been diſcovered petrified, as well as many petrified ones which have no analogy to thoſe hitherto found in the ſea.

I have found ſmall terebratulæ on the muſcles, which were drawn up, adhering to the fiſhing lines on board the Bouſſole, near Baie de Ternai, from a depth of about thirty-five fathoms; and ſixty-two leagues further to the north, near Baie de Suffren, ſeveral, both great and ſmall, were caught by the Bouſſole and Aſtrolabe. M. de la Pérouſe having ordered the drag to be let down, in order to know whether there were upon theſe ſhores any pearl oyſters, procured a kind of pectinated oyſter, which I ſhall deſcribe hereafter, and many terebratulæ of different ages. As this fiſh forms a genus by itſelf, I thought it right to give it a careful examination, and deſcribe not only its ſhell, but the animal which inhabits it. This is a work that has never yet been executed, for the deſcription of two terebratulæ, publiſhed by M. Pallas, was taken from imperfect ſpecimens, as I ſhall have occaſion to ſhew: the explanation of the technical terms which I ſhall be obliged to make uſe of may be found in the excellent work of M. Adanſon, on the ſhell-fiſh of Senegal.

ANOMIA OF THE COAST OF TARTARY.

Deſcription of the Shell.

The length of this ſhell varies from ſix to twenty lines, and its breadth from five to eighteen; there are, however, conſiderable varieties of proportion between different individuals, beſides thoſe ariſing from the different ages of the animal. It would be improper, therefore, to diſtinguiſh the various ſpecies of anomiæ by the proportion of their ſhells. The waving lines on the edges of the ſhell are equally defective, as diſtinctive characters, for I have obſerved in the ſame ſpecies the ſhell approaching or receding indifferently from the circular form; and, in ſome, the edges of the valves are on the ſame plane, whereas in others, one of the valves forms a ſalient angle in the middle of its curve, and the other a re-entering angle.

Nature of the Shell.

The ſhell is of a moderate thickneſs, about that of a common muſcle; it is ſomewhat tranſparent, convex like the cockle: neither of the ſhells is more ſenſibly arched than the other; that, however, which has

has the ſpur, is rather the moſt ſo, eſpecially in the ſuperior part.

Striæ.

On the ſurface of the ſhell are ſeen a number of ſlight tranſverſe depreſſions, of a ſemicircular waved form, which reach the part where the ſhell ceaſes to be circular, in order to form the angle which ſupports the ſummit.

Perioſteum.

The ſtriæ are covered with a very thin and ſlightly-adhering perioſteum; in ſome ſpecimens there are from one to three ſhallow broad depreſſions, radiating inſenſibly from the centre of the ſhell, and becoming more marked as they approach the edges, where they form with the correſponding parts of the other ſhell thoſe ſalient and re-entering angles of which I have juſt ſpoken. The perioſteum is rather more firmly fixed on the latter angles than on the former.

Shells.

The ſhells are equal in the rounded part of their edge, and cloſe very exactly; however, towards the ſummit, the ſpur of one of the ſhells reaches

conſiderably beyond the other ſhell, conſequently they are unequal as in oyſters.

Summit.

The ſpur, or ſummit, is formed by the folding from within of the edge of the ſhell, and the elongation of its upper part. The folded edges form an oval aperture of a moderate ſize, through which the animal extends the muſcle, by means of which it attaches itſelf to other ſubſtances. This ſhell is not, therefore, perforated, as its name of terebratula would ſeem to imply, the opening not being worked in one of the ſhells, but formed by the elongation of one ſhell, the folding in of its edges, and the approach of the other ſhell. The ſummit is not pointed, but round.

Ligament.

The ligament, as in the oyſter, is placed between the ſummits, and does not appear on the outſide; it adapts itſelf to the pedicle of the animal. As the ſummit takes up a conſiderable part of the ſhell, the valves are only capable of opening a very little without running the riſk of being broken. It is very firm, though ſlender, and not eaſily to be diſcovered, being fixed in a ſmall groove, which is filled up when the ſhell is ſhut by the correſponding part

part of the oppoſite ſhell. This ligament preſerves its texture, even for a conſiderable time after the ſhell is emptied and become dry.

Hinge.

Oyſters are without a hinge, the teeth which form it in many other ſhells not exiſting in them. The anomia has been conſidered as an oyſter, becauſe its hinge or teeth have not been examined: they are not viſible indeed in the foſſil ſpecimens; but in opening them when alive, the teeth compoſing the hinge are ſufficiently viſible, being even much larger than in the greater part of bivalve ſhells. The foſſil terebratulæ are almoſt always found with their ſhells cloſed, whereas the other bivalves have uſually theirs either open or ſeparated: the reaſon of this ſeems to ariſe from the nature of the hinge, that of the anomia not allowing it to ſeparate, and the ligament, which is very tight, contributing to keep the two ſhells united. The teeth which form the hinge of the anomia approach very near to thoſe of the *ſpondyle*, deſcribed by M. Adanſon. In this laſt they are formed by two rounded projections, and in the anomia by the ſame a little elongated. It is above theſe teeth that the ligament is placed in the larger ſhell: there are between it and the teeth two cavities, one on each ſide, which ſerve to receive the teeth of the other valve.

The

The teeth of the larger ſhell have, beſides, a ſlight projection, which fits into a longitudinal furrow in the other ſhell in front of the teeth.

Nacre, or *Mother of Pearl.*

The ſubſtance which covers the inſide of the ſhell holds, as in oyſters, a middle place between *nacre* and the interior ſubſtance of ſhells, which are deſtitute of it. The degree of its luſtre, poliſh, and thickneſs, varies with the age and circumſtances of individuals.

Colour.

The colour of the teeth is always white, that of the outer ſurface of the ſhell verges more or leſs to the ochry red, eſpecially on the border. The inſide has alſo a very ſlight tint of this colour, on a varying greyiſh-white ground.

Tendons.

Under this head we ſhall only conſider the poſition of the tendons, and their impreſſion on the ſhell. The deſcription of the tendon itſelf belongs to that of the animal. There is viſible on each ſhell of the preſent ſpecies the impreſſion of two very diſtinct tendons, a circumſtance which forms an eſſential

eſſential difference between this genus and that of the oyſter: this latter having only one tendon ariſing from the middle of the body. The impreſſions of the tendon in the largeſt ſhell are oblong, ſituate near the ſummit, and hollowed; each of them has curved tranſverſe ridges, divided into two parts by a longitudinal furrow, repreſenting the wings of certain inſects. In the other valve the inſertions have a different form; their ſituation is the ſame, but they are very irregularly rounded and encompaſſed by two ſulcations, which are ſeparated from each other by an intervening ridge, and then are continued in a right line towards the opening of the ſhell as far as about two thirds of its length.

That part of the ſummit of the ſhell along which the pedicle of the animal paſſes, is longitudinally ſtriated in the larger ſhell, of which the middle ſtria is the deepeſt: the longitudinal ſtriæ are divided into equal parts by a tranſverſe depreſſion. There are no ſimilar marks on the other ſhell. The ſhells of the anomia have within a very delicate part, which is peculiar to them, and which ſome authors have taken notice of under the name of *tongue* or *fork*, becauſe they have never ſeen them entire: it ſerves as a ſupport to the body of the animal, and I ſhall deſcribe it when ſpeaking of its uſe.

DESCRIPTION

DESCRIPTION OF THE ANIMAL.

The anatomy of ſhell-fiſh is very delicate, and offers inſurmountable difficulties. The labours of Rhedi, Reaumur, and Swammerdam, ſtill leave much to be deſired on the ſubject. They confeſs, in their immortal works, that moſt frequently they were obliged to have recourſe to conjecture. In the animals that inhabit ſhells, and eſpecially in the bivalves, there are ſeveral parts ſtill to diſcover, and others already known, the uſe of which is not yet aſcertained. There are new compariſons to be inſtituted of the generic, ſpecific, and individual differences, ſo that this ſtudy ſtill offers a vaſt field for inveſtigation.

I expected to have made ſome diſcoveries of this kind by the anatomy of the animal which inhabits the *pecten maximus* (great ſcallop), and all the parts of which would be very diſtinct: I ſaw ſeveral of theſe ſhells in the Philippines; but the province which furniſhes them was unfortunately too far from the port of Cavite, where we anchored. I ſhall not undertake to give the complete anatomy of this anomia, but, after the example of Mr. Adanſon, I ſhall notice the beſt known parts, and thoſe which ſufficiently characteriſe the genus.

Manteau

Manteau and Trachea.

The *manteau* of the anomia of Baie de Suffren is formed of a very fine membrane, lining the inside of both ſhells, and containing the body of the animal. Its origin is of the ſame breadth as the hinge of the ſhell, whence it divides into two lobes, lining both the ſhells: it forms, therefore, only a ſingle aperture, terminating at each end of the hinge, and of the ſame breadth with the interior ſurface of the ſhell: it appears to have only one trachea, which is formed by the two lobes of the manteau. Mr. Pallas did not recognize the manteau in the two varieties which he deſcribes, calling it very improperly periоſteum: its imperfect ſtate, in the dried individuals that he examined, doubtleſs drew him into this error.

Muſcles.

After having opened the ſhell, I divided the ligament as delicately as poſſible, and unfixed the hinge: having then detached from the larger ſhell the lobe of the manteau, I turned it over the body of the animal. This operation expoſed to view the large muſcles which adhered to the ſhell; they are ſoft, membranous, and, as it were, fleſhy on the inſide, being covered with ſmall ſanguiferous glands. From

the lower part of each muſcle there proceeds a pretty ſtrong tendon, which reaches to the extremity of the manteau; they run parallel to the edge of the ſhell, and at a conſiderable diſtance from each other; and are each encloſed in a ſort of flatted ſac, of the ſhape of a ribbon, which is filled with a red viſcid matter. It appears, that the place of inſertion of the muſcles, as well as the muſcles themſelves, which extend along the lobe of the manteau, furniſh real blood, which is contained in three ſmall fleſhy red glandular bodies of unequal ſize, which are viſible after having taken off the muſcles; perhaps theſe conſtitute the heart of the animal. The anatomy of ſhell-fiſh is not ſufficiently advanced to enable me to decide upon it, but it is nevertheleſs certain, that, in the anomia, thoſe muſcles which are attached to the larger ſhell are lined with fleſhy particles, which contain much blood, as well as the two other muſcles which ariſe from the ſame place, and which contribute to form the pedicle, of which I ſhall ſoon ſpeak.

The muſcles which are inſerted into the other ſhell are alſo divided into ſeveral parts: ſome are ſeen extending along the correſponding lobe of the manteau; many others riſe up in a kind of tuft, which is fixed into the ſhell above: ſome again ſubdivide into ſuch minute ramifications as not to allow of tracing their courſe, even with the aſſiſtance of a microſcope; but others, more apparent, contribute

to the formation of the pedicle which paſſes through the opening left between the two ſhells, is connected to each of them by ſeveral fibres, and fixes itſelf to ſome external body, principally to other bivalves. The muſcles of the anomia have, therefore, three attachments, namely, to the inner ſurface of each ſhell, and to ſome external body.

Pedicle.

The form of the pedicle is cylindrical, being encloſed in a muſcular ſubſtance, which contains ſeveral fibres: it is from a line to a line and a half long, and two thirds in diameter. I am unacquainted with the reaſon of its adhering ſo forcibly to different ſubſtances, as that the animal, and all the muſcles which contribute to the formation of the pedicle, may eaſier be torn through than the pedicle detached from the place of its adheſion. The glutinous ſubſtance which connects them to each other, reſiſts even the heat of boiling water. It is by means of this pedicle that the animal raiſes its ſhell ſo as to be, while in the water, in a poſition inclined to the horizon. The ſmalleſt valve is always the loweſt, being that upon which the animal reſts; the ſuperior one being the larger, and ſerving as a covering. It is, therefore, improper to call, as is uſually done, the ſmaller of the two the upper ſhell. This error ariſes from conſidering only the poſition of oyſters,

which is the reverſe of that of the anomia. Has this animal the power of loco-motion, or does it always remain fixed to the place of its birth? In order to give a ſatisfactory anſwer to this queſtion, it would be neceſſary to make minute and frequent examination. I have, nevertheleſs, ſome reaſons for thinking, that they are capable of changing their place, though they very ſeldom do it in the courſe of their lives. Having detached ſeveral pedicles with a ſharp knife, I obſerved, particularly in the larger ones, that they were fixed in a ſmall depreſſion that they had formed in the ſhell to which they adhered. This circumſtance, and the forcible adherence of the pedicle to the ſhell on which it is fixed, prove, that the terebratula continues for a length of time in the ſame place; but I have met with ſeveral cluſters of ſmall anomiæ, which were ſo cloſe, that they could not grow larger without incommoding each other, for a ſingle middle-ſized terebratula occupies the place of five or ſix ſmall ones.

Ears.

After raiſing the lobe of the manteau I obſerved the ears. They are large, compoſed of two membranaceous laminæ on each ſide, of which the ſuperior is the narrower. Theſe laminæ are connected to each other by a thin membrane, ſo as to form

form only a ſingle pouch. They have on their edges long fringes, which hang looſe upon the manteau; but a very remarkable circumſtance is, that their ears are ſupported by little bones like thoſe of fiſh. I ſhall give a more particular deſcription of them after having deſcribed the ſoft parts. The form of the ears is that of an arch; they are ſeparated from each other on their lower part, where the fringes are the longeſt, ſo that the two ears on one ſide are perfectly diſtinct from thoſe on the other ſide. The commencement of the ears is at the teeth of the hinge.

Mouth, Œſophagus, and Stomach.

Between the ears are ſituate the ſtomach, œſophagus, and mouth, the whole forming a triangle of which the mouth is the baſe. It is placed at the ſide of the hinge, and conſiſts of a large tranſverſe opening without lips or jaw-bone. The œſophagus is very ſhort, but is capable of elongation when the animal opens its mouth. The ſtomach, which is of the ſhape of a pointed ſac, is connected by a membrane to the bones of the ear. On opening the ſtomach, I found a ſmall ſhrimp half digeſted. It is not eaſy to conceive how theſe ſhrimps, which are very active, and have good eyes, ſhould ſuffer themſelves to be caught by a blind animal, which can hardly open its own ſhell, and is fixed immove-

ably to another. Animals, eſpecially the aquatic ones, have means, of which we are ignorant, to enable them to fulfil their vital functions, and theſe means, once known, may conduce by fortunate applications to the progreſs of the arts.

Inteſtines and Anus.

At the bottom of the ſtomach is ſeen the inteſtine, of which, it is, as it were, a continuation. It is extremely ſhort, not exceeding half a line in a ſhell fifteen lines acroſs, and is compoſed of a very ſlender membrane. The excrements are diſcharged upon the lobes of the manteau, but they are eaſily thrown out by the motions of the two lobes. It is very probable, that the excrements of the terebratula ſerve as food to the ſhrimps, and other little animals upon which it feeds. The poſition of the anus, at the opening of the ſhell, and that of the mouth, in the further part of it, confirm this conjecture.

Small Bones of the Ears.

The little bones of the ears which I have diſcovered in the terebratula have not hitherto been obſerved in any of the teſtaceous animals, whence the terebratulæ approach nearer to fiſh than the inhabitants of any other ſhells. In the anomiæ which are preſerved in cabinets, there is found only a very ſmall portion

portion of theſe bones, whence they have obtained the improper appellations of *tongue* or *fork*, which indicate only the form of the fragments, and not their uſe.

The ſmall bones of the ears are compoſed of ſeveral pieces, the principal of which is of an oval form; it ſprings from the ſide of the hinge, of which it appears to be a continuation, thence it extends about two-thirds of the breadth of the ſhell, where it is reflected, and reſts againſt the upper part of the fork, to the branches of which it is united by a ſimple ſuperpoſition, a kind of articulation very common among the numerous ſmall bones that compoſe the heads of fiſh. The fork extends from the ſummit a little more than one-third of the breadth of the ſhell: it is formed by a pivot which divides into two long and pointed branches; theſe are remarkably brittle, and ſupport, as I have already ſaid, the extremities of the bones of the larger ears. The lamina, which compoſes a ſecond ſet of ears, reſts upon a curved bone, which on one ſide is attached to the inferior internal part of the bone of the larger ears, and on the other reaches to the ſide of the mouth of the animal, where it is united to another flat little bone which is applied to a ſimilar bone on the other ſide. Theſe laſt little bones are exactly below the membrane which forms the mouth. I am ignorant of their uſe, though I preſume that the animal employs them to open and cloſe the ſtomach at pleaſure, by

extending or contracting the ſkin at its orifice. All theſe bones are flat, very brittle, and ſurrounded with fibres and membranes. By their articulations the ears are enabled to move; they alſo ſupport the body of the animal, which touches neither of the ſhells, but remains between them as upon treſſels. The ſpace between the branches of the bones of the ears is filled up with a tranſparent firm membrane; at the baſe of the fork is a ſimilar one, and a perpendicular partition dividing the ſpace occupied by the body of the animal from the reſt of the ſhell. There are two orifices in this membrane communicating with the ſpace between the two lobes of the manteau, and which ſerves as a trachea, for we have remarked, in the deſcription of the manteau, that the two lobes are entirely ſeparated from each other, and therefore do not form a real trachea.

From this deſcription it follows, that the anomia ought to be ſeparated from the genus oyſter, ſince it has a toothed hinge, ſeveral ligaments, and an interior organization wholly different; neither ought it to be confounded with the cockle, the ſhells of which are both equal, and are deſtitute of any ſenſible perioſteum, without reckoning other differences. It has ſtill leſs analogy with the other bivalves, and therefore ought to conſtitute a peculiar genus, the ſpecies of which, both foſſil and living, are very numerous.

Explanation

Explanation of the Plate of the Shells.

Fig. 1. Anomia of a middle ſize, taken from its inferior ſurface.—A, the hole through which the muſcular pedicle paſſes.

Fig. 2. View of the ſuperior ſurface of the ſame.

Fig. 3. Side view of a ſmall anomia.

Fig. 4. View of the other ſide of the ſame.

Fig. 5. Front view of an anomia of middle ſize.

Fig. 6. Natural poſition of the ſhell in the water.

Fig. 7. View of the ſhell which has the claw.—A, impreſſion of the muſcles on the inſide of the ſhell.

Fig. 8. Inferior ſhell.—A, impreſſion of the muſcles.

Fig. 9. View of the internal ſtructure.—A A, laminæ of the ſuperior ears—B B, laminæ of the inferior—C, the ſtomach—D, the anus—E E, the manteau—F, the œſophagus.

Fig. 10. A A, the muſcular pedicle paſſing through the opening of the upper ſhell.

Fig. 11. View of the little bones of the ears.—A, the fork—B B B, bones of the larger ears—C C C, the lower ſhell—D D, ſmall bones below the œſophagus—E E, points of the fork—F F, bones of the ſuperior ears—G G, teeth of the hinge, to which are connected the ſmall bones of the ears—H, place of the pedicle.—I I, the fringes of the ears.

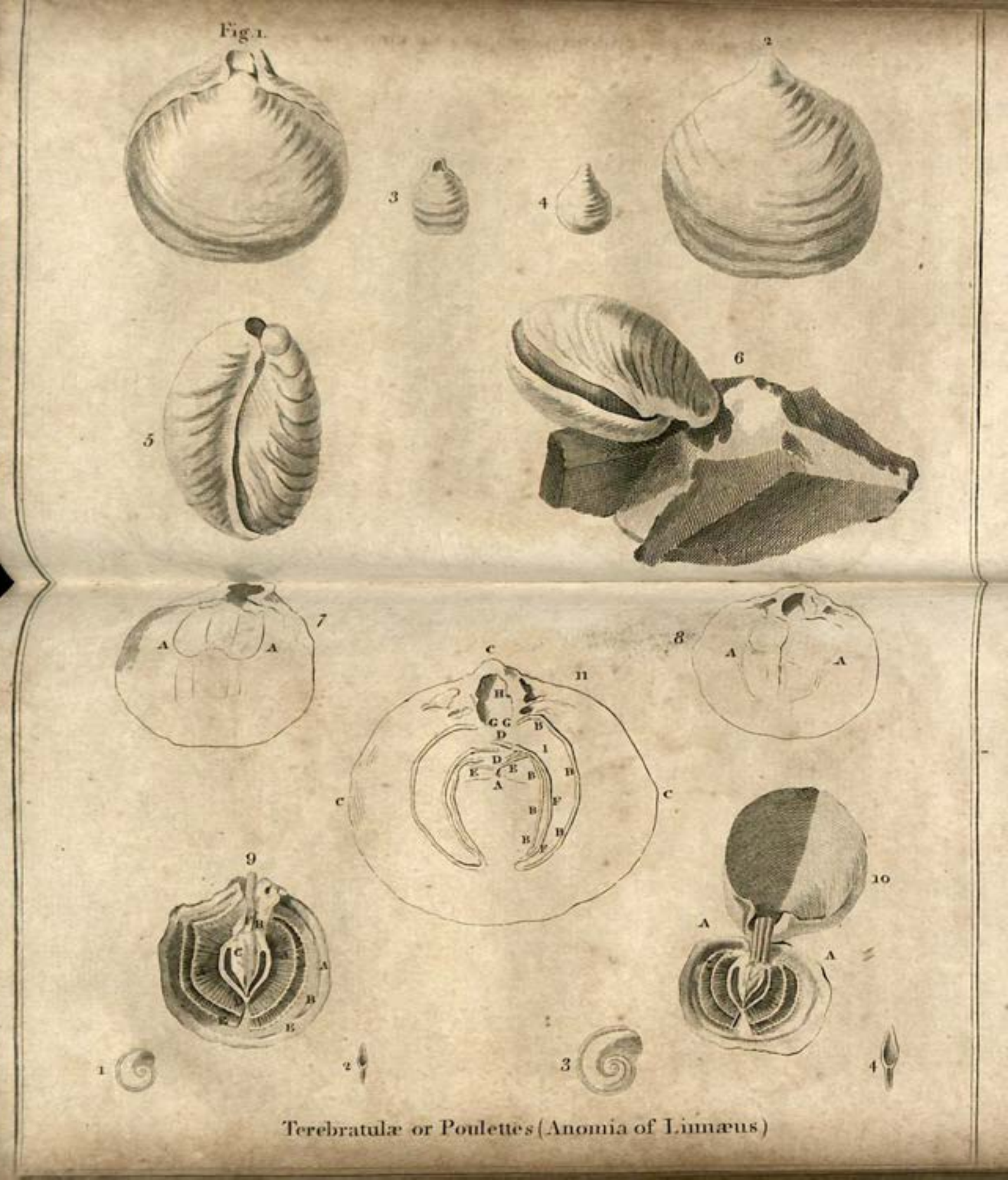
MEMOIR

MEMOIR

ON THE CORNUA AMMONIS,

Together with the Deſcription of a Species found in the South Sea between the Tropics; by M. de Lamanon.

Of all the genera of animal remains, that have been found buried in the ancient beds of the ſea, that of the cornua ammonis is unqueſtionably the moſt abundant and moſt univerſally diffuſed. Many authors reckon more than three hundred varieties of them, and probably, there yet remain many to be diſcovered. They have been found from half a line and leſs in circumference, to ten feet. Some naturaliſts, on the authority of Linnæus, aſſert, that cornua ammonis, ſimilar to all the varieties of foſſil ones, are yet to be found alive in the depth of the ſea, and therefore call them pelagian ſhells. The majority however of naturaliſts, not ſatisfied with this aſſertion, look upon the cornua ammonis as a genus of ſhells, which are no longer met with except in a foſſil ſtate. Several authors have deſcribed microſcopical cornua ammonis diſcovered among the ſand of the ſea, but almoſt all theſe, when accurately examined, appear to be only nautili,



Terebratulæ or Poulettes (Anomia of Linnæus)

tili. With regard to thoſe that Hoffman was ſaid to have diſcovered in Norway, he himſelf afterwards acknowledged, that they were not cornua ammonis, but orthoceratites. I am perſuaded there are ſtill in the ſea living cornua ammonis, but in very ſmall number, and materially different from the foſſil ones. Theſe laſt ought to be conſidered as a race formerly the moſt numerous of all, the deſcendants of which either no longer exiſt, or are reduced to a few degenerated individuals.

The moſt gratuitous hypotheſis is commonly the moſt difficult to overthrow; on this account I ſuppoſe ſcarcely any arguments have been adduced againſt the exiſtence of the pelagian ſhells, though it is an idea that has generally been rejected. The following obſervations are to me ſufficient proof of the falſehood of this hypotheſis.

The ſhells of the foſſil cornua ammonis are very light and thin; whereas the ſhells of thoſe animals that live in very deep water are always thick and ponderous: beſides, the form of the foſſil cornua ammonis points out to us, in ſome meaſure, the organization of the animal which inhabited it. The celebrated Juſſieu proved, in 1721, that there exiſted a very cloſe analogy between the ammonite and nautilus*. It is well known that the nautilus,

* There are, however, ſome ſtriking internal differences: firſt, the partitions in the ſhell of the nautilus are more curved than thoſe of the ammonite: ſecondly, the ammonite wants the ſmall hole which communicates from one cell to the other.

by

by filling or emptying a part of its ſhell, has the power of remaining ſtationary in any depth it pleaſes: the ſame was doubtleſs the caſe with the ammonite; and if this ſpecies ſtill abounds in the ſea, it would ſurely be occaſionally diſcovered by ſailors.

The waves alſo would throw fragments of it on the ſhore; fiſhermen might ſometimes entangle it in their nets; or, at leaſt, there would be fragments ſticking to the lead of the ſounding line when aſcertaining great depths. It may alſo be added, that if the ammonites never quitted the abyſs of the ſea, thoſe which are found petrified would not be conſtantly met with on the ſame level, and in the ſame bed, as thoſe ſhell fiſh that only inhabit the ſhallows. There are, however, found in Normandy, Provence, Touraine, and a multitude of other places, ammonites mixed with turbines, buccina (whelks), and other littoral ſhells. They are found, beſides, at every degree of elevation from below the level of the ſea to the ſummits of the higheſt mountains. Analogy alſo leads us to ſuppoſe, that Nature, who has given eyes to the nautilus, has not refuſed them to the ammonite; now what uſe could theſe be of if they remained confined to thoſe depths which the light is unable to penetrate?

The extinction of the ancient race of ammonites is therefore an eſtabliſhed fact, which no rational ſuppoſition can deſtroy; and this fact is undoubtedly the moſt ſurpriſing of any, that is preſented to us in the

the hiſtory of aquatic animals. The diſcovery of a few living ſpecies of cornua ammonis does not deſtroy the truth of this, for theſe ammonites are very different from thoſe which are found petrified: they are extremely rare, and cannot be looked up to as the repreſentatives of the old ammonites, ſo varied in their ſpecies, and the number of which in the ancient ocean was probably far more conſiderable than that of all the other ſhells beſides.

Wallerius, ſpeaking of the petrified ammonites, ſays, that they belong to that claſs of ſhells, which are divided into ſeveral ſeparate compartments, communicating by a pipe. It is, however, certain, that there are ammonites without theſe cells. Authors have conſidered the ammonite as a ſpecies of nautilus, and in each there are ſhells both with and without partitions.

Every univalve ſhell, rolled in a ſpiral, ſo as that a horizontal plane will divide it into two equal parts, formed of united ſpirals, and bearing a certain proportion to each other, is an ammonite. The volutes of St. Hubert are not ammonites, becauſe their ſpires are diſunited: the orthoceratites cannot be cornua ammonis, becauſe their ſpires are not on a horizontal plane ſo as to divide the ſhell into two equal parts; for an attentive obſerver will ſee, that the ſpires, though convex on the upper ſide, are always flatted at the baſe. The planorbes, which conſiderably reſemble the ammonites without

cells, differ from them in the proportion of their ſpires, for the firſt is much narrower than the others. Certain planorbes have a conſiderable external reſemblance to the ammonites with cells, whereas the external appearance of the ammonites without cells differs eſſentially from them. The nautili differ from the ammonites in their ſpire being interior; they return into the ſhell after the firſt circumvolution, whereas the ſpires of the ammonite are all without.

I thought it abſolutely neceſſary to aſcertain the preciſe meaning of the term ammonite, previous to deſcribing that which I found during our voyage round the world. The form of this is almoſt orbicular, the long diameter being to the ſhort one as three lines to two lines and three quarters. The firſt ſpire is by far the largeſt, occupying nearly half of the longitudinal diameter. The ſummit is placed at the diſtance of about two-thirds of this diameter; it is terminated on the right-ſide by a very ſmall knob viſible only through a magnifier, thus differing from the ammonite of Rimini, which beſides, is microſcopical and celled, the inſide of this which we are now ſpeaking of being entirely plain. The number of ſpiral circumvolutions is four and a half; they are equally convex on both ſides, and are fixed on a plane, dividing the ſhell into two equal parts: there is on each ſide a kind of boſs formed by the increaſe of the perpendicular diameter of the ſpires,

ſpires, in proportion as they recede from the centre. The ſurface is ſmooth, the back is armed with a flat, even, brittle creſt, as thin as paper, ſurrounding it on every ſide like a ruff; it is about half a line broad, extends over the ſummit of the ſpires, and ſerves to join them together. The mouth of the ſhell is nearly triangular; its edges project in the form of lips, and are rounded at the border. I have often found this ammonite encloſed in the ſtomach of the bonetta, (ſcomber pelamis Linn. 170, 2.) caught in the South Sea, between the tropics, where no bottom was found with a line of more than two hundred fathoms. Theſe ſhells were covered with a black clayey mud: their ſize varies from one to four lines acroſs; they are conſequently the largeſt living ammonites that have yet been diſcovered. The animal being partly digeſted, did not allow me an opportunity of examining it minutely.

Explanation of the Figures.

Fig. 1. Cornu ammonis of the natural ſize.
Fig. 2. Form of the mouth.
Fig. 3 and 4. The ſame magnified.

MEMOIR

ON THE TRADE FOR SEA-OTTER SKINS, &c.

It ought not to be forgotten, that the advancement of geography was not the ſole end of government in fitting out at ſo great an expence the frigates Bouſſole and Aſtrolabe, and that it was incumbent on the commander of the expedition, to inform the miniſtry of any commercial advantages, that might be obtained from the countries which we have viſited.

The American coaſt, from Mount St. Elias to Monterey, offers to the ſpeculations of our merchants a variety of furs, eſpecially thoſe of the ſea-otter, which have a certain and ready ſale in China. This fur, ſo highly valued in Aſia, is found in America, along an extent of twelve hundred leagues of coaſt; being more common and more widely ſpread than ſeals themſelves are upon the coaſts of Labrador. Whatever be the ſize of the empire of China, it appears to me impoſſible, that the otter ſkins ſhould keep up their high price there, while a competition exiſts of this commodity between the different nations of Europe; and ſince the mine, if we

we may be permitted to make uſe of this term, is ſo abundant, that ſeveral cargoes may be procured in one year, even if the privilege of each nation be confined to an extent of coaſt of about five degrees, and terminating about thirty leagues to the north of port San Françiſco, which is the moſt remote Spaniſh eſtabliſhment. The publication of Coxe furniſhes numerous details with regard to the trade in furs that the Ruſſians carry on with the Chineſe, and it may be conſidered as at leaſt twice as important as it was in the year 1777, from the data which he has given; and I doubt not that the Ruſſian factors extend their traffic at preſent to Cook's River, and ſoon will puſh it as far as Prince William's Sound*. It would be of great importance to the political object of my voyage, to know with the ſame preciſion the nature of the Spaniſh eſtabliſhments to the ſouth. Theſe two nations extend their traffic in this line from Kamtſchatka to California, but at the time of my departure we were ſtill ignorant in France of the boundaries of the climate moſt favourable to the multiplication of the ſea-otter, as well as the limits of the Spaniſh ſettlements, and the ſhare which that nation propoſed to take in the fur-trade of China. We perhaps flattered ourſelves, that Spaniſh indolence would long

* I ſhall endeavour to verify this conjecture at Kamtſchatka.

leave materials for the activity of other nations; and, indeed, it muſt be confeſſed, that the plan of the viceroy of Mexico, to reſerve to government the excluſive trade of otter-ſkins, is very likely to realize theſe expectations.

I was unable to acquire the neceſſary information without touching at Monterey, for it is well known, that, for a long time paſt, the Spaniards have publiſhed nothing; the policy of this government being to keep ſecret all its tranſactions in America. The Engliſh have had the addreſs to procure lately a copy of the journal of a pilot called Maurelle, which they have publiſhed: without this aſſiſtance we ſhould not even have known, that there exiſted miſſions at Monterey; but this journal, which is little elſe than a table of the courſe of a ſmall corvette from Port San Blas to Los Remedios, in the 57th degree, gave us no other particulars, and the Spaniards at that period imagined, that the fur of the ſea-otter was of no more value than that of the rabbit. The pilot Maurelle, therefore, does not even mention the exiſtence of this animal, and probably he confounded it with the ſeal. His countrymen, at the preſent day, are better acquainted with the ſubject. They know, that in the northern provinces of China, there is a great demand for otter-ſkins, that the winter clothing of all the mandarines of the higheſt order, and all the rich people of that empire, is compoſed of them; and that this,

of

of all the objects of luxury, is probably that which moſt eagerly excites their deſire, becauſe, to the fineneſs and luſtre of its appearance, it unites the advantage of being a very warm clothing, and therefore preferable to any other.

I ſhall not repeat in this memoir the different particulars * which I have inſerted in my journal, and which, I think, might be made public without any impropriety; but I ſhall conſider whether it would be of advantage to the French nation to eſtabliſh a factory in Port des Français, of which we have taken poſſeſſion; an eſtabliſhment of which no government will have a right to complain: or whether France ought to confine itſelf to the licenſing of private expeditions thither: or, laſtly, whether the commerce ought to be entirely prohibited to our merchants.

As I wrote this memoir in our paſſage from Monterey to China, I had not acquired all the information neceſſary to the complete ſolution of the propoſed inquiry, becauſe that depends much on the demand at China, and particularly from the fall in price, which muſt be the reſult of the importation of ten thouſand otter-ſkins, which the preſidency of Monterey is able to furniſh every year, even ſuppoſing that they do not procure a much

* The knowledge of theſe particulars is abſolutely neceſſary to underſtand this memoir. *(Fr. Ed.)*

greater quantity from their new eſtabliſhments to the north of Port des Français.

We procured by barter at Port des Français about a thouſand otter ſkins, a number ſufficient to enable us to know their exact price at China; but hardly any of theſe ſkins were whole, for the northern Indians, not being aſſured of a ſale, are in the habit of making them up into articles of their own clothing: we therefore obtained them in ſmall pieces, dirty, ſtinking, and torn; and, in ſhort, in ſuch a condition, that I can hardly believe them to be of any great value in China, though the editor of Cook's third voyage affirms, that the whole of their ſcraps were readily ſaleable. It is evident, that if we had an agent on the north-weſt coaſt of America, or even a regular annual commerce thither, the Indians would ſoon bring to our market only entire ſkins, eſpecially if thoſe which had been at all worn were abſolutely refuſed.

I am certain that it would have been extremely eaſy to obtain by barter five or ſix thouſand ſkins by putting into five or ſix different bays between Port des Français and Los Remedios, and thus employing the whole ſeaſon; but, convinced that the ſhips of government ought to protect commerce, and not carry on trade themſelves, I did not even for a moment give way to the idea. The quantity that we have, was procured in eight or ten days at Port des Français. It is

more than ſufficient for our purpoſe, and I would not have given up the leaſt object of public utility for a thouſand ſkins more; but it was abſolutely neceſſary to procure a certain number, in order to aſcertain their value, and to make our merchants acquainted with the probable returns of ſuch ſpeculations *.

I have reflected a good deal on the ſcheme of eſtabliſhing a factory in Port des Français, or the neighbourhood, and it appears to me ſubject to ſerious objections, on account of its immenſe diſtance from Europe, and the uncertainty of the commercial returns from China, ſince there will be a competition in theſe ſkins, which are ſo eaſily procured along the whole coaſt, between the Spaniards, Ruſſians, Engliſh, and French. Beſides, it is certain,

* The profits of this venture will be ſhared among the ſailors, as a compenſation for their dangers and fatigues. I obſerved with the greateſt ſatisfaction, that all the officers and paſſengers agreed with me, that it would be a kind of ſacrilege to mingle any intereſted view with the motives that determined us to make this voyage. I have nominated M. Dufreſne ſupercargo for the ſailors: I ſhall ſubmit to the inſpection of the miniſter his accounts, and the ſhares we have divided, as well as the amount of the ſhare of each individual; and if the ſum ſhould prove to be conſiderable, it will, I doubt not, joined to what they will receive from government, induce the greater part of them to marry, and their families, being thus in eaſy circumſtances for their ſituation in life, will multiply, and prove hereafter of great uſe to the navy.

that our East India Company will object to the privilege, which it will be neceſſary to grant to the adventurers, of taking their goods to a Chineſe market; the expence of the equipment too would be ſo conſiderable, that the mere ſale of furs would not be ſufficient to indemnify a company like that of Hudſon's Bay, if their ſhips were obliged to return to Europe in ballaſt; and it would be abſolutely neceſſary, that they ſhould be freighted back by the East India Company, at a price of tonnage agreed upon in Europe, as well as to allow them intereſt for the value of their furs, and to make uſe of them in the purchaſe of its cargoes.

But theſe different regulations are ſubject to great inconveniencies; the two companies would unqueſtionably be at conſtant variance, and their agents would not agree better. Beſides I am certain, that, if they were united, one of the two parties would be reduced to inactivity, and this would certainly be the fur traders. Theſe excluſive privileges deſtroy commerce, as large trees overgrow and ſtifle the ſhrubs below them.

Although the Ruſſians are to the north, and the Spaniards to the ſouth, ſeveral ages will probably elapſe before theſe nations meet, and there will remain in the mean time intermediate points which may be occupied by other nations, without exciting the jealouſy of any one, if governments were not in general more ſuſpicious than individuals. Spain would

would doubtleſs regard it as an uſurpation if a few acres of land were occupied by the French, though, at the ſame time, they might not be able to diſcover the factory for many years, if its latitude and longitude were kept ſecret; but this would be too inconſiderable an advantage, to run the riſk of the ſlighteſt altercation on its account, between the cabinets of Verſailles and Madrid; and even ſuppoſing the Spaniſh court ſhould agree to ſuch an eſtabliſhment, it would firſt be adviſable to gain ſome acquaintance with this branch of commerce by a few private expeditions, in order to know whether it be firmly eſtabliſhed as far as regards China. It would be by no means adviſable to grant the trade to an excluſive company, but merely to allow a privilege to ſome commercial town of ſending three expeditions of two ſhips annually, which ſhould ſet ſail at the ſame period, ſo that it would be poſſible to receive intelligence of the firſt expedition at the time when the third was commencing its voyage. The equipment would be expenſive, becauſe the veſſels ſhould be ſtrongly built, amply provided with ſails, cables, and cordage of every ſort, and commanded by experienced captains. No other voyage being comparable to this, as to the length and difficulty of the navigation, it would not be right to expoſe to the ſeas of Cape Horn and North America, veſſels of leſs than four or five hundred tons burden. They might, indeed, if it

were abſolutely neceſſary, be rather ſmaller, if their only object were to bring back furs in exchange for the articles they took out; but it ought to be obſerved, that the expence of the outfit of a ſhip of three hundred tons does not materially differ from that of one of five hundred, becauſe they will each require a good captain and the ſame number of officers: the chief difference, therefore, will be in ſeven or eight ſailors, more or leſs; and as I go upon the ſuppoſition that the Eaſt India Company would be required to freight back theſe veſſels on its own account, it would be a material object to the owners to receive the freightage money for five hundred rather than for three hundred tons.

Therefore, judging from the various particulars that have been touched upon in this memoir, I think that it is as yet much too early to think of eſtabliſhing a factory, or even of conſtituting an excluſive company for this trade; that it ought to be ſtill leſs truſted to the Eaſt India Company, which would either execute it very ill or not at all, ſo as to diſguſt government with the ſcheme. But it might be proper to engage one of our ports to fit out three expeditions, inſuring them a freight back from China, as I have before mentioned. I can take upon myſelf to aſſure government, that traders will be able to procure by barter a great quantity of otter ſkins, in the ſpace between Nootka Sound and Eaie des Français. They ought, however,

to

to be cautious of entering any bays except ſuch as they can eaſily get out of again, becauſe the more places they touch at the more advantageous will be their barter. The ſkins which may be procured the firſt year will be ſoiled, and of an inferior quality, but thoſe of ſucceeding years will probably be in better condition. The beſt article of barter will be bar-iron, about four fingers broad, and ſix or eight lines thick, ſome common iron hatchets, and large blue or red beads. The coſt of ſuch a cargo will add very little to the expence of the equipment *.

The chart which I have ſent to the miniſter of marine, will be ſufficient for their purpoſe. It is exact, and much ſuperior to others that have been made in the ſame circumſtances that we were. The great danger in this navigation ariſes from the currents; it is therefore of importance to ſhun the narrow harbours where they run with great rapidity. With this precaution, I doubt not that the traders will be able to procure a great quantity of furs, eſpecially if they avoid all occaſion of quarrelling with the natives, laying it down as a maxim not to reclaim the articles of which they may be robbed, if of no great value.

Theſe are the only particulars, that I have yet

* It would be of advantage to take on board a few barrels of charcoal, together with a forge, and a ſmith capable of giving the bar of iron any form that the Indians may wiſh.

been

been able to procure relative to this commerce. All the principles of my reaſoning are founded upon my obſervations in America, for I have not hitherto made any in China. On this head I ſhall be better informed on my departure from Macao, and I ſhall be in poſſeſſion of every fact on the ſubject after having viſited Kamtſchatka *.

At ſea during the paſſage from Monterey to Macao, Dec. 1786.

(Signed) LA PEROUSE.

* The particulars with which captain Cook has furniſhed us relative to the fur trade, and the enormous profits which have attended the firſt ſpeculations of this kind, will of courſe excite the avidity of merchant adventurers. It is eaſy, however, to foreſee, that competition will cauſe a great fall in the price of furs at China; and, on the other hand, from the number of traders, the Indians will become more extravagant in their demands.

Since Cook's laſt voyage the Engliſh have made ſeveral expeditions to the north-weſt coaſt of America, of which the reſults have been made public.—Such of our readers, as may deſire more particulars upon this ſubject, ſhould refer to Meares's voyage, and that of Dixon, and compare them with Peroufe, and the information contained in the laſt voyage of Cook. (*Fr. Ed.*)

STATE

STATE

OF THE

OTTER AND BEAVER SKINS

Procured in Port des Français, on the North-West Coaſt of America, by the Frigates Bouſſole and Aſtrolabe.

OTTERS.

THE otter ſkins were divided into three lots; namely, the entire ſkins, the fur upon ſlips of woollen cloth, (or *ponchos*), and edgings, or very narrow bandages. The firſt lot was divided into three qualities; the firſt, conſiſting of virgin ſkins, or thoſe the fur of which is clean and of an uniform colour; the ſecond conſiſts of thoſe that are a little damaged, but ſtill fine; the third conſiſts of ſuch as are ſoiled, mixed, and therefore only fit to be fulled or felted by the hat-maker. It would, I think, be advantageous to bring a great part of theſe to France, in order to ſubmit them to different experiments.

The entire otter ſkins, thoſe upon the ſlips of woollen cloth, and the beaver ſkins, were all reduced to ſquare feet, and eſtimated, piece by piece, according

according to different modes of valuation. The edgings were alſo ſorted according to their different degrees of fineneſs and ſhades of colour, and valued very low, according to the price of calabar ſkins in France. The furs of the firſt quality were ſorted into eleven diviſions, and valued according to their ſize, at different prices. The articles forming each diviſion were eſtimated at three different prices, deduced from Coxe's account of the Ruſſian diſcoveries, from the voyages of captain Cook, and the information that we ourſelves received at Monterey. The firſt price is the loweſt at which, I imagine, the ſkins can be ſold; the ſecond is the medium price according to the Spaniards of Monterey; the third has been determined from captain Cook's voyages. The firſt diviſion, from the ſmalleſt ſize to that of two feet incluſively, has been eſtimated for the loweſt price at five piaſtres the ſquare foot; an entire ſkin of ſix ſquare feet, which is one of the largeſt ſize, being worth thirty piaſtres. For the Monterey price, at ſeven piaſtres and a half, being forty-five piaſtres for the whole ſkin. For the price according to Cook, at ten piaſtres, being ſixty piaſtres for the whole ſkin. This latter price, however, appears to be extravagant, and only ſet on to leave room enough for abatement. This method has been followed in all the other diviſions.

BEAVERS.

It appears from the account of furs exported by the Engliſh from Hudſon's Bay to Peterſburg, and by the Ruſſians to Kiatcha, that the beaver of Hudſon's Bay is worth at Kiatcha, from 7 to 20 roubles the ſkin (the rouble eſtimated at 4 livres, 10 ſous).

The loweſt price, of 7 roubles, makes 31 livres, 10 ſous, for each ſkin.

I have eſtimated the beaver ſkins according to their common meaſure of 18 by 20 inches, or 2½ ſquare feet.

The loweſt price for the ſquare foot is half a piaſtre, making from 6 to 7 livres the ſkin.

The ſecond price is 1 piaſtre, making from 13 to 14 livres the ſkin.

The higheſt price is two piaſtres, making from 26 to 30 livres the ſkin.

From theſe data the following calculations reſult: 3231 ſkins of every ſize and quality, being the whole of what we procured, have been eſtimated as the loweſt price, at 41,063⅛ piaſtres, or 221,740 livres, 17 ſous, 6 deniers, French money; as the medium price of Monterey, at 63,586⅝ piaſtres, or 343,365 livres, 15 ſous, French money; and laſtly, at the price mentioned by Cook, at 84,151 piaſtres, or 454,415 livres, 8 ſous, French money.

EXTRACTS

EXTRACTS

From the Correſpondence of Meſſieurs de la Pérouſe, de Langle, and Lamanon, with the Miniſter of the Marine.

M. DE LA PE'ROUSE.

SIR, Monterey, September 17, 1786.

OUR ſhips have been received by the Spaniards like thoſe of their own nation; and every ſort of ſuccour has been laviſhly beſtowed upon us. The religious belonging to the miſſions have ſent us a very conſiderable quantity of all kinds of proviſion; and we have preſented them, for the uſe of their Indians, with an infinite number of little articles, which we took on board at Breſt for that purpoſe, and which they will, no doubt, find highly uſeful.

You know, ſir, that Monterey is not a colony; it is only a poſt of about twenty Spaniards, maintained by the king of Spain for the protection of the miſſionaries, who labour with the greateſt ſucceſs in the converſion of the ſavages. This new ſyſtem will never be reproached with any of the acts of cruelty that diſgraced the age of Chriſtopher Columbus,

Columbus, and the reign of Ferdinand and Iſabella.

Our biſcuit is a little decayed; but our corn, our meat, our wine, &c. have kept beyond our hopes, and have contributed not a little to the health of our crews. Our ſhips are in excellent condition; but they ſail exceedingly ill.

M. DE LA PE'ROUSE.

Monterey, September 19, 1786.

SIR,

As my diſpatches are to be carried over-land acroſs America, and are to paſs through the city of Mexico, I can neither venture to ſend you by this conveyance the details of our voyage, nor the plans we have taken, nor the number of exact obſervations which we have collected, and which enable us to give you the beſt information concerning the fur trade, and the part meant to be taken in it by the Spaniſh nation.

They have their eyes conſtantly fixed upon that important article of commerce, the purchaſe of which the king reſerves to himſelf in all the *préſidios* of California. The moſt northern of the Spaniſh factories furniſhes ten thouſand ſea-otter ſkins yearly; and if they continue to be ſold advantageouſly in China, it will be eaſy for Spain to procure as many

as

as fifty thouſand, and by that means to give a mortal blow to the trade of the Ruſſians at Canton *.

Sea-otters begin to be found on the coaſt of California in the 28° of latitude. They are there as plentiful as in the north, but of an inferior quality.

On the coaſt of America we have made diſcoveries, which have eſcaped former navigators, and we have taken poſſeſſion of a poſt very fit for the eſtabliſhment of a factory. A hundred men might defend it againſt a conſiderable force.

Sea-otters are found there alſo in ſuch abundance, that we purchaſed a thouſand ſkins in a fortnight. They will be ſold in China for the benefit of the ſailors only. All the officers and ſcientific men are of opinion, that glory alone can compenſate the hardſhips and dangers of a voyage like ours.

That part of the coaſt which lies between 50° and 55° of north latitude, and which was not ſeen by Cook, will alſo be very intereſting in our narrative. We have made important diſcoveries; but the particulars cannot be communicated to you in cipher. They will be diſpatched to you from China, with the notes relative to the political and ſecret object of my inſtructions concerning the trade to be carried on upon the coaſt of America.

* This is probably an error. Kiatcha, on the frontiers of the two empires, is the emporium of the Ruſſian trade with China, and is the place where they ſell their furs at ſo high a price. T.

M. de

M. DE LA PE'ROUSE.

SIR, Monterey, September 19, 1786.

I have already had the honour to inform you, that, while following my orders in every particular, I thought it proper to avail myself of the permiſſion given me to change the plan of my inſtructions, and to begin by the north-weſt coaſt of America. I will be bold to ſay, that my mode of proceeding has been attended with the greateſt ſucceſs. In the ſpace of fourteen months we have doubled Cape Horn, and run to the extremity of America, as far as Mount St. Elias. After exploring that coaſt with the greateſt care, we arrived at Monterey on the 15th of September. The king of Spain's orders had preceded us thither; and it would have been impoſſible, in our own colonies, to meet with a better reception.

I have alſo to inform you, ſir, that we have put into the different iſlands of the South Sea that had excited curioſity: . . . . . and that we have run five hundred leagues from eaſt to weſt in the parallel of the Sandwich Iſlands, in order to clear up ſeveral very important points of geography. I anchored for twenty-four hours only at the iſland of Mowee, and paſſed through a channel which the Engliſh had no opportunity of viſiting.

I ſhall be at Kamtſchatka at the beginning of Auguſt, and at the Aleutian Iſlands at the end of the ſame month. I have thought proper to defer the exploring of thoſe iſlands till after my viſit to Kamtſchatka, in order to know what the Ruſſians have not done, and to add ſomething to their diſcoveries.

From the Aleutian Iſlands I ſhall ſail, without loſing a moment, to the ſouthern hemiſphere, in order to execute the orders given me. I will venture to ſay, that the plan of no voyage was ever equal to ours. We have already paſſed a year under ſail, and have nevertheleſs ſeen, during the ſhort intervals we have paſſed in port, things equally novel and intereſting. You will hear with pleaſure, ſir, that we have not yet had a ſingle perſon ſick on board of the Bouſſole, or ſhed a ſingle drop of Indian blood. The Aſtrolabe has loſt one man, a ſervant, who died of a conſumption, that would have carried him off had he remained in France. We ſhould certainly be the luckieſt of navigators, but for the ſevere misfortune we have met with *. I ſpare my feelings the pain of relating it here, and I requeſt you to permit me to addreſs to you an extract from my journal, begging you, ſir, to have the goodneſs to ſend copies to the families of the officers who periſhed ſo unfortunately. I loſt on that fatal day

* At *Port des Français*. T.

the

the only relation I had in the navy. Of all thoſe who have navigated with me, he was the young man that ſhowed the greateſt turn for his profeſſion. He ſtood me in the ſtead of a ſon, and his death affected me more than any other event of my life. Meſſieurs de la Borde, de Pierrevert, and de Flaſſan, were alſo officers of great merit.

Our misfortunes have obliged me to make uſe of the lieutenant's commiſſion that remained undiſpoſed of in favour of M. Broudou, my wife's brother, who embarked as a volunteer, and with whoſe conduct I am highly ſatisfied. I have dated the commiſſion from the 1ſt of Auguſt, 1786. I have alſo given M. Darbaud an order to act as enſign. He is a young officer much diſtinguiſhed by his talents.

All the officers, men of ſcience, and artiſts, enjoy the beſt ſtate of health, and fulfil their functions with the greateſt ability.

M. DE LANGLE.

SIR, Monterey, September 22, 1786.

I can add nothing to the detail of our navigation communicated to you by M. de la Pérouſe, becauſe, ſince our departure from Breſt, I have never loſt ſight of his ſhip for a ſingle moment.

Deſtined to follow his fate, I have ſhared in his misfortunes: Meſſieurs la Borde-Marchainville, La Borde-Boutervilliers, and Flaſſan, periſhed on the 13th of July 1786. An exceſs of courage and humanity occaſioned their death. . . . . They finiſhed their career at the moment when able to render ſignal ſervices to the ſtate. The firſt two eſpecially, animated by the zeal, perſeverance, and curioſity, that are requiſite to finiſh a voyage ſuch as that we have begun, had all the talents neceſſary to extricate themſelves from the moſt difficult ſituations: in a word, I loſe in them two friends, whoſe advice has often been of the greateſt aſſiſtance to me. This misfortune has not damped the ardour of the five officers that remain on board the Aſtrolabe. Their duty, which is always more laborious in harbour than at ſea, does not diſcourage them. The good underſtanding they keep up with one another, and the lively intereſt they take in the ſucceſs of the voyage, are the ſafeguard of my ſhip; while the curioſity that animates them prevents their beſtowing a thought on their return to France.

M. de Monti is an excellent ſeaman, and a pattern of good ſenſe, foreſight, and firmneſs of mind.

M. de Vaujuas unites with thoſe qualities a very uncommon portion of information and underſtanding.

M. Daigremont, who has now a great deal of experience in ſea affairs, is bold and enterpriſing.

He

He does not diſappoint the hopes that are generally entertained of a ſprightly and diſſipated youth. He is now approaching the age of maturity, which will enable him to ſerve with diſtinction, becauſe he poſſeſſes judgment, and a firm temper of mind.

M. de Blondela, an officer of great ſenſe, patience, and aſſiduity, is perfectly maſter of his buſineſs. He employs his leiſure hours in drawing plans, and in making very pleaſing and curious deſigns. On the 13th of July, M. de la Pérouſe gave him an order to do the duty of captain of a fire-ſhip. I beg you will be pleaſed to grant him that rank, of which I think he is highly deſerving.

M. de Lauriſton, whom M. de la Pérouſe has promoted to the rank of enſign, is a young man of particular merit, who has acquired a great knowledge of ſea affairs. He is alſo indefatigable in taking obſervations, and I place the moſt entire dependence upon him in that branch of the ſervice. As ardently deſirous of making diſcoveries as his brother officers, he cares no more than they do about his return to France.

I have alſo the greateſt reaſon to commend the ſocial qualities of M. de Leſſeps, of M. de la Martinière, of Father Receveur, and of M. Duſreſne.

The loſs of the four beſt ſoldiers, and of three excellent ſeamen of my ſhip's company, has produced no diſcouragement among the reſt of the crew. I conſequently promiſed, after the event of

the 13th of July, a gratification of two months pay.

Francis Lamare, my boatſwain, is a very deſerving man. . . . If he continue to conduct himſelf as he has done till now, I ſhall give him, in the courſe of the voyage, the commiſſion of *entretenu* *, which was ſent me for that purpoſe.

My boatſwain certainly deſerves this recompenſe; but being aware that it would create jealouſy, I have thought it incumbent on me to promiſe Mathurin Leon, my firſt pilot, Robert Marie le Gal, my carpenter, and John Francis Paul, my caulker, that I would entreat you in the moſt urgent manner to fix the date of their ſubſiſtence *(entretien)*; I will alſo requeſt of you to advance the term of that of John Groſſet, who, although younger than the others, is their equal in capacity and underſtanding. It appears to me, that I owe to theſe promiſes the harmony that prevails on board my ſhip; and it is to the example ſet by theſe warrant officers, that I attribute the gaiety and alacrity of my ſhip's company.

Gaulin, maſter at arms, doing the duty of gunner, is alſo a man of merit. The means I poſſeſs of increaſing his pay, which is ſmall, will enable me to reward his ſervices.

The rate of going of the time-keeper No. 18, has

* We have no word that anſwers to this, which ſeems to imply a right to be kept conſtantly in pay. T.

been aſtoniſhingly regular; which makes me ſuppoſe, that the longitude of all the places we have viſited ſince our departure from Conception, are determined with the moſt rigorous preciſion.

The rate of the time-keeper No. 27, though leſs regular than that of No. 18, is as ſatisfactory as I could hope, and what M. Berthoud foretold it would be. We conſtantly prefer the circles invented by M. Borda to ſextants in determining the longitude by diſtances between the ſun and moon. There has always been the greateſt conformity between the reſults which Meſſieurs de Vaujuas, de Lauriſton, and myſelf, have obtained by means of thoſe inſtruments, which, bating ſome ſmall defects in the execution, are, I think, by far the moſt perfect that exiſt for determining the longitude at ſea. Father Receveur, and four of my pilots, are alſo very well verſed in theſe kinds of obſervations.

In the number of the latter is a man of the name of Broſſard. Being very deſirous that he ſhould be farther inſtructed, I do not wiſh him to be removed from the claſs of pilots before our return to the Iſle of France. He is at preſent ſecond pilot, and unites a good moral character with an excellent underſtanding. He is highly deſerving of encouragement, and deſerves to be taken from the ſtate of indigence in which he was born, and which accords ſo ill with his conduct and behaviour.

Don Bertrand Joſeph Martinez, commander of

the Spaniſh frigate Princeſſa, fitted out at San Blas, was at anchor in the Bay of Monterey when we arrived there. He has anticipated our wants with indefatigable kindneſs, and has rendered us every ſervice in his power. He has requeſted of me, to beg you will recommend him to the Spaniſh miniſter; and moſt happy ſhould I be, to have an opportunity of contributing to his promotion.

I am about to ſail from this place without a ſick man on board. The care of M. Lavaux, my ſurgeon, was exerted in vain to ſave M. de Vaujûas's ſervant, who was ill at the time of our leaving Breſt of a conſumption, which carried him off on the 11th of Auguſt, 1786. The buck-wheat, as well as the common kind, which we took on board at Breſt, have kept very well. Mills conſtructed by ourſelves, and worked by two men when there is little wind, furniſh us with twenty pounds of meal each per hour. We have adapted to them the mill-ſtones made uſe of by M. de Suffren during his laſt campaign. I have preſented one of theſe mills to the miſſionaries of Monterey.

M. DE LAMANON.

In the Chineſe ſeas, Jan. 1, 1787.

SIR,

After a voyage of ten thouſand leagues, I ſhould be happy to have it in my power to give you an account of all our diſcoveries in natural hiſtory, and of my particular labours; but all the matters that I treat of, are ſo connected with one another, that it would be neceſſary to ſend you whole volumes. I have neglected nothing in my department, that could tend to fulfil your deſigns. I have examined every thing from the ſand that adheres to the lead of the ſounding line, to the mountains to which I have been able to penetrate. I have formed collections of fiſhes, of ſhells, of inſects, and of deſcriptions of animals, and I truſt I ſhall be able to add conſiderably to the number of known organized beings. The natural hiſtory of the earth, ſea, and air, employ me by turns. If we be not the firſt circum-navigators, who have the progreſs of the ſciences in view, the Engliſh, at leaſt, will not be the only ones. All that remained for you to do, ſir, after an advantageous peace, was to give birth to this rivality of glory which is uſeful to all the world.

At

At the beginning of the laſt century *, our neighbours, while in ſearch of gold, diſcovered a new world. In the preſent age the French by mathematical meaſurement have determined the figure and dimenſions of the earth. The Engliſh have deſtroyed the chimera of a northern paſſage, which was entertained by themſelves; they have begun a general ſurvey of the globe, at which we are now at work under your auſpices, and which on ſome future day ſucceeding generations will complete. But what will for ever ſignalize this voyage, what will be the glory of the French nation in the eyes of philoſophers, of our contemporaries, and of poſterity, will be our having frequented nations reputed barbarous without having ſhed a drop of blood. Our voyage, indeed, is not at an end; but the ſentiments of our commander are well known to me, and I well know how he is ſeconded. In a moment of diſturbance and danger, occaſioned by a miſtake, 'Take your muſkets,' ſaid he, 'but do not load them.' Every thing was appeaſed by his prudence. To the merit of being a ſkilful navigator, and a brave warrior, M. de la Pérouſe adds another ſtill dearer to his heart—that of being, at the extremities of the world, the worthy repreſentative of the humanity

* This is an egregious chronological error. Every one knows, that the new world was diſcovered at the end of the 15th and the beginning of the 16th century. T.

and

and virtues of his nation. Our voyage will prove to the whole world, that the French are a good people, and that man in a ſtate of nature is not a miſchievous animal.

I have detached ſeveral memoirs from my journals, and have addreſſed them to the Academy of Sciences. I beg of you, ſir, to have them delivered to my correſpondent, M. Condorcet, perpetual ſecretary of the Academy. I take the liberty at the ſame time to put ſeveral letters under your cover, perſuaded, that by that mean they will reach their deſtination with greater certainty.

M. DE LA PE'ROUSE.

Macao, January 3, 1787.

SIR,

All the plans that accompany this were drawn by M. Bernizet, a young man of great underſtanding and accuracy. Although all the officers cooperated in the aſtronomical obſervations, it is no more than juſt, that they ſhould bear the name of M. Dagelet, by whom they were directed. Beſides, it is not ſufficient, that they ſhould deſerve the confidence of navigators, they ſhould alſo inſpire it; and the name of a profeſſional aſtronomer, and a member

member of the Academy of Sciences, is well calculated to attain that end.

M. Dagelet and all the officers have alſo taken ſurveys; but M. Bernizet has been particularly and conſtantly engaged in them. He has regiſtered them, brought them together, and rejected ſuch as did not connect. I have therefore conſidered all the trigonometrical operations as belonging to that geographer, who is far ſuperior to the opinion I entertained of him when he firſt came on board. He is perfectly maſter of that branch of the mathematics, that is neceſſary to his profeſſion. He paints, draws, and takes plans with the greateſt facility; and I am ſatisfied, that his talents would render him highly uſeful to a general of the land forces, who ſhould make him his aid-de-camp during a war. He would alſo be very ſerviceable in the navy; and I ſhould be very happy to procure him a place on my return.

The Aſtrolabe has, upon all occaſions, made the ſame aſtronomical and trigonometrical obſervations as the Bouſſole. M. de Langle himſelf took the diſtances and horary angles with Meſſieurs de Vaujuas and de Lauriſton; while among his principal officers he had a perſon, namely, lieutenant de Blondela, who performed exactly the ſame functions as M. Bernizet. I ſhould have taken care to ſend you the Aſtrolabe's plans, if, on a compariſon with our own, I had not found them ſo much alike, that

the

the doing ſo appeared perfectly unneceſſary; but the identity of reſults on board the two ſhips is a ſtrong proof of the accuracy of our obſervations.

I have the honour, ſir, to forward to you two drawings of M. de Blondela, which are not inferior to the four of M. Duché. The latter has repreſented the coſtumes of the natives with the greateſt truth; and his drawing of Eaſter iſland gives a much better idea of the monuments there, than the engraving after Mr. Hodges. As they appear to have excited much curioſity, I have ordered M. Bernizet to draw an exact plan of them. I have alſo in my relation endeavoured to complete the deſcription of the natives, who will be little viſited by Europeans, on account of the poverty of their iſland. The three other drawings of M. Duché are alſo executed with great truth. This is only a ſpecimen of his activity: full twenty more are ſtill remaining in his port-folio.

Young M. Prévoſt has made all the drawings of birds, fiſh, and ſhells. As a reward for his zeal, I have done him the favour of tranſmitting to you three of his drawings of birds.

The Spaniſh chart of the Great Pacific Ocean, which I have the honour of forwarding to you, and on which I have marked my track from Monterey to China, is deteſtable. I add it to the others only as a proof, that our knowledge of that immenſe ſea had made no progreſs for two centuries, becauſe the galleons

galleons from Manilla always followed the ſame route, without ever deviating ſo much as ten leagues.

M. DE LA PÉROUSE.

Macao, January 3, 1787.

SIR,

I have the honour to addreſs to you a complete account of my voyage as far as Macao, with a table of the route we have followed day by day. I annex thereto plans of the coaſts we have run down, of Port des Français, of which we have taken poſſeſſion, of the different iſlands we have viſited, including *iſle Necker*, and of the *Baſſe des Frégates Françaiſes*, where we were ſo near being loſt. I have marked the track of the two frigates upon the general chart that accompanies this. It paſſes through the middle of ſeveral iſlands which do not exiſt, and which idly occupy ſpaces upon the maps where land was never ſeen.

Our chart of the north-weſt coaſt of America is certainly the moſt accurate that has ever been conſtructed, and wants nothing to complete but thoſe minute details which are the work of time, and of a long ſeries of voyages.

We have ſurveyed the entrance of the archipelago

lago of St. Lazarus (if it be proper ſtill to give it that name), determined its true latitude and longitude, as well as its width from eaſt to weſt, and twenty leagues of its depth to the northward. The ſeaſon, which was already far advanced, the ſhortneſs of the days, and the farther plan of our voyage, did not permit me to penetrate to the bottom of that labyrinth, which would have required two or three months, on account of the precautions neceſſary to be taken in this kind of ſurvey, the reſult of which, though it might ſatisfy curioſity, could never be intereſting to navigation; or of the ſmalleſt utility to France. I ſhould not perhaps have heſitated in undertaking its completion, if I had been at the entrance of this archipelago in the month of *June*; but at the end of Auguſt, with the equinox approaching, the nights twelve hours long, and almoſt perpetual fogs, the enterprize was, I will be bold to ſay, impoſſible; and, without being of any advantage to geography, would have endangered the ſucceſs of the reſt of the voyage.

I flatter myſelf, ſir, you will remark, that out of near eighteen months, we have paſſed fifteen at ſea, and only three in port. The ſucceſs of my cares has been ſo conſtant, that we have had neither ſickneſs nor ſcurvy; but although at the moment I have the honour of writing to you, we have gone ten thouſand leagues, we have as yet performed little

little more than a third of our voyage; and I dare not flatter myſelf, that the reſt of it will be attended with the ſame good fortune, if indeed we can call ourſelves fortunate after the dreadful accident we met with in *Port des Français*, of which I have had the honour of giving you an account in my letters from Monterey. Since the precautions I had taken did not prevent it, I am but too well perſuaded, that we cannot eſcape from the hand of fate.

I have been ſcrupulouſly attentive not to change the names given by captain Cook to the different capes of which he got ſight; but you will not fail to remark, ſir, that we approached the coaſt of America much nearer than that celebrated navigator. We have, therefore, been authorized to give names to harbours, bays, iſlands, and iſlots, of which he did not even ſuſpect the exiſtence. Cuſtom has permitted me to take their names from among thoſe which have the moſt powerful claims to my remembrance.

I heartily wiſh, ſir, that your occupations may allow you to run over the different chapters of my narrative, in order that you may form a judgment of the punctuality with which I have endeavoured to fulfil all the articles of my inſtructions. I have viſited Eaſter iſland; the ſite of the ſuppoſed iſlands eaſt of the Sandwich group, which do

do not exiſt; Mowee, one of the Sandwich iſlands, on which Cook did not go aſhore; the north-weſt coaſt of America, from mount St. Elias as far as Nootka; but from Nootka to Monterey, I have only ſurveyed thoſe points; the bearings of which captain Cook had no opportunity of taking, and which had remained dotted upon the chart.

I have procured the information required of me by my private inſtructions concerning the Spaniſh ſettlements, and have the honour to ſend you herewith a memoir upon that ſubject.

I have croſſed the Great Pacific Ocean in a parallel a hundred and ſixty leagues diſtant from that of any other navigator. I have diſcovered Necker iſland, and *la Baſſe des Frégates Françaiſes*. I have proved by my route the non-exiſtence of the iſland of Gorta, Deſerta, la Mira, and the Gardens *; and I have viſited, as I was enjoined to do; one of the iſlands to the northward of the Mariannes, whence I have proceeded to China.

I ſhall leave it at the beginning of the ſeaſon, in order to navigate between the coaſt of that vaſt empire, of Corea, of Tartary, and of the Japaneſe and Kurile iſlands. I ſhall afterwards put in at Kamtſchatka; and on leaving that port, ſhall viſit the Aleutian iſlands, as well as thoſe that are laid

* See Vol. II, page 262. *(Fr. Ed.)*

down to the eaſt of Japan, of which the exiſtence is, however, highly doubtful.

Nothing will then remain to be done, but to ſail towards the ſouthern hemiſphere, not forgetting, at the ſame time, to viſit the Caroline iſlands, which are ſituate to the north of the line, and which I am enjoined to explore. It is only from Kamtſchatka, ſir, that it will be poſſible for me to inform you of the further plan of the ſecond part of my voyage, becauſe I cannot altogether fix it till I know to a certainty the preciſe time of my leaving the Siberian harbours; and I am as yet ignorant of that which I ſhall be obliged to employ in my navigation along the coaſt of Tartary. The ſouth-weſt monſoon, which is met with to the ſouthward of the line, as early as the beginning of November, will not allow me yet to form projects, which would be annihilated by the leaſt delay; but if I find it poſſible to get through Endeavour ſtraits before that monſoon ſets in, my firſt navigation will be round New Holland. In the contrary caſe, I ſhall begin with Cook's paſſage in New Zealand, the ſouth ſide of New Caledonia, and the Arſacides and Caroline iſlands: then paſſing through the Moluccas with the north-weſt monſoon, I ſhall explore the coaſt of New Holland, and afterwards proceed to the iſle of France.

This plan is vaſt; but it does not go beyond the

the zeal of any of the perſons employed in the expedition. What is moſt difficult is, to complete all this buſineſs in four years; and perhaps it is impoſſible for our ſhips, our rigging, and our proviſion, to hold out longer. However this may be, ſir, I ſhall uſe my beſt endeavours to fulfil the whole of the inſtructions given me; but I ſhall be able to make very little ſtay in the different ports we may touch at; and the paſſing ſo much time at ſea will not accord very well with the views of our botaniſts and mineralogiſts, whoſe talents for the ſeveral ſciences they cultivate can only be exerciſed on ſhore.

EXTRACT

Of a Letter from M. de la Martiniere.

Macao, January 9, 1787.

"Here we are midway on our voyage, after having ſucceſſively put in at Madeira, at the iſland of Teneriffe, at St. Catherine's in the Braſils, at Conception in Chili, at Eaſter iſland, at the Sandwich iſlands, on the north-weſt coaſt of America, and at Monterey in California."

(Here M. de la Martinière deſcribes the plants he has met with in the places which the voyagers have viſited. Among thoſe he obſerved in the iſland of Madeira, he mentions the *dracæna draco.*) "It is becoming, ſays he, very ſcarce there. The idea given by the ſhabby ſpecimens cultivated in our hot-houſes is far inferior to that we entertain of it, when we have an opportunity of ſeeing it in its native ſoil. I met with three in particular, of which the trunk was ſix or ſeven feet high, and four and a half, or five in diameter. The principal branches, twelve or fifteen in number, and as thick as a man's body, ſhoot out a little obliquely, dividing themſelves generally into two, and now and then into three, to the height of forty or fifty feet, including the ſeven feet of the trunk. The leaves are all at the extremity of the branches, where they are placed in alternate order, and form a cluſter. This tree preſents the moſt perfect regularity to the eye; and tempts the ſpectator to think, that the moſt ſkilful gardener makes it the object of his daily care."

From the iſland of Madeira the voyagers proceeded to that of Teneriffe. M. de la Martinière obſerved, from the harbour of Orotava to the laſt cone of the peak, five different kinds of vegetable productions. "I am inclined to think, ſays he, that this difference is only due to the greater or ſmaller decompoſition of the baſaltes, which muſt neceſſarily return to vegetable earth. We are conſequently

ſequently not ſurpriſed to ſee the plain of Orotava entirely covered with vines, and ſeveral ſorts of fruit trees, becauſe the rain and melted ſnow carry down to it the earth that is the fineſt, and moſt proper for vegetation.

"Beſides ſeveral plants peculiar to this iſland, of which the celebrated Maſſon has given an exact deſcription, we meet with the ſhrub known by the name of *ſpartium ſupranulium*, and very well deſcribed in the ſupplement of Linnæus. It is the laſt ſhrub found in approaching the ſummit of the mountain, and vegetates with ſuch luxuriance, that it is nothing uncommon to meet with one of which the aſſemblage of branches is eighty feet in circumference by ſeven or eight in height. It bears an immenſe quantity of flowers, which ſeem likely to attract the bees, although at an elevation very conſiderable for ſo weak an animal to reach. What led me to this conjecture was my finding in the crater of that famous peak ſeveral vents or chimnies, at the opening of which were handfuls of bees half conſumed. Probably they had been ſuffocated there by the ſulphureous vapours, after having been attracted by the gentle heat into this aſylum againſt the cold and impetuoſity of the winds that had ſurpriſed them at ſo great a diſtance from their humble abode.

We breathed there very much at our eaſe, as long, at leaſt, as we were not expoſed to thoſe ſul-

phureous vapours which exhale from the crater by an infinite number of vents, below which we could perceive a great quantity of ſulphur ſhot into needles and cryſtals of a very beautiful form. The volatile alkali appeared to us to poſſeſs all its uſual energy. In deſcending the peak we took the road that leads to the little village of Gouima, which gave me an opportunity of ſeeing ſeveral other little volcanoes, and a few ſhrubs that I had not found in the other parts of the iſland, ſuch as the *cytiſus proliferus*, the *ciſtus monſpelienſis*, the *ciſtus villoſus*, the *erica arborea*, and the *pinus tæda*, in tolerable plenty."

On the 30th of Auguſt the voyagers ſet off from this iſland, the firſt place they put into afterwards being the iſland of St. Catherine, on the coaſt of Braſil; a place which offers the fineſt field poſſible for all ſorts of reſearches in natural hiſtory; but the rain, that fell during M. de la Martinière's ſtay, hindered his proſecuting his ſtudies with the ardour he could have wiſhed.

More fortunate at Chili, a country where M. Dombay made a long and profitable ſtay, M. de la Martinière, who was ignorant of the labours of that learned man, undertook, like him, to correct the errors that father Feuillée has committed in his *Hiſtoire des Plantes*. However, while expoſing theſe errors, M. de la Martinière confeſſes, that the monk's book is a work of merit, and be-

ſpeaks a very well informed mind. In treating of the *liſti*, a tree under which father Feuillée and other botaniſts ſay, that people fall involuntarily aſleep, and afterwards experience an inſupportable itching, M. de la Martinière expreſſes himſelf thus.

"The ſtory he has told us concerning the bad qualities of the *liſti* admits, I think, of ſome reſtrictions, according, at leaſt, to what I was witneſs of myſelf. Being one day on an excurſion, accompanied by one of our ſoldiers, we were joined by two Spaniſh peaſants, who took a pleaſure in following us, and in telling us the country names of the different plants we met with. Coming at length to ſeveral *liſti*, which overhung the road we were paſſing along, I ſaid to them, pointing to one of thoſe trees, Here is a *liſti*, which they immediately confirmed, by calling it by the ſame name. I then told them by ſigns that it was dangerous to touch it. One of them, to convince me of the fallacy of my fears, pulled off a handful of the leaves, and chewed them for a long while in his mouth, till he had reduced them to very ſmall fragments. He made me, however, underſtand by ſigns, that if I ſlept in its ſhade, I ſhould be taken with an itching all over my body, and that I ſhould be obliged to ſcratch myſelf; a ſign which he had no difficulty in expreſſing, their want of cleanlineſs making it a part of their

daily labour. Thus encouraged by the example he had ſet us, we gathered handfuls of fruit from the ends of the branches, without either of us experiencing the ſmalleſt ill effect. Is it not poſſible that the bad qualities of this tree are due to an inſect, which I perceived, of a reddiſh colour, and exceedingly minute ſize? This, however, I only give as a conjecture.

M. DE LA PE'ROUSE.

SIR, Macao, Jan. 18, 1787.

It is incumbent on me to give you a particular account of all the officers and paſſengers of the diviſion; and as I have a great deal to ſay in their favour, it is a duty which it is very agreeable to me to perform.

M. de Langle is an excellent officer, who combines, with great talents for his profeſſion, the moſt unſhaken fortitude of mind. His punctuality in following me has been ſo conſtant, that we have never, perhaps, been once out of hail, unleſs when I have ordered him to keep at a greater diſtance, and to make ſail a-head, his ſhip ſailing infinitely better than mine.

The

The reſignation of M. Monge has not been any way prejudicial to the aſtronomical obſervations made on board the Aſtrolabe, becauſe M. de Langle was as good a marine aſtronomer as the profeſſor himſelf. He has found an able ſecond in M. Vaujuas, a very well informed officer, who has taught the method of taking obſervations to M. de Lauriſton. The latter is in all reſpects a very accompliſhed young man, as well as to information, as to diſpoſition, zeal, and fondneſs for the ſervice.

I have authorized M. de Langle to make you acquainted with his own opinion of the talents, diſpoſition, and conduct, of each of his officers and paſſengers. I know he is incapable of being actuated by favour or affection; and conſequently that the truth will come to you undiſguiſed.

M. de Clonard, my ſecond captain, is an officer of great merit, who joins to profeſſional talents a degree of punctuality, zeal, honour, and love of glory, which renders him in my eyes one of the moſt eſtimable men I ever knew. Agreeably to your orders, I delivered to him his commiſſion as poſt-captain on the firſt of January, to take rank among the other captains from that date, as expreſſed in the letter you did me the honour to write to me, dated Verſailles, June 23, 1785.

M. Boutin is a man of great ſenſe and talents.

His

His indefatigable activity, and his firmneſs, and *ſangfroid* in difficult circumſtances, are ſuch as I can never ſufficiently praiſe. It is to the latter quality that I am indebted for the preſervation of the jolly-boat, which rowed through the breakers upon the ſhoal at *Port des Français*, on the day that our unfortunate companions were caſt away.

I ſhould have availed myſelf on that day of the right you were pleaſed to grant me in the above letter, of advancing or poſtponing the epoch of the king's favours. A recompenſe was certainly due to the officer to whom I owed the preſervation of ſix other perſons, and who had himſelf eſcaped from imminent danger; but we were all ſo much afflicted, that I judged it beſt not to grant him his reward till the firſt of January 1787, becauſe you had fixed that day for granting one of the ſame kind to M. de Vaujuas. I have conſequently only given him ſix months earlier rank than he would otherwiſe have had.

If it were leſs painful to me, ſir, to remind you of the misfortunes we have met with, I ſhould take the liberty of repreſenting to you, that the death of ſix officers renders null the greateſt part of the favours you have been pleaſed to grant to the officers of the expedition.

Meſſiers. Colinet, St. Ceran, Darbaud, Mouton, and Broudou, to the laſt two of whom I have delivered

livered the two commiſſions of *Lieutenant de Frégate*, are full of zeal and activity, and do their duty to my perfect ſatisfaction: a call for their ſervices frequently occurs, each boat being invariably commanded by a commiſſioned officer. The number would indeed have been inſufficient, but for the two appointments I have made.

M. DE LANGLE.

SIR, Macao, January 18, 1787.

The Aſtrolabe has made a very fortunate paſſage from Monterey to Macao. I have not loſt a ſingle man; I have not had a ſingle perſon ſick on board; and my ſhip will be able to continue the voyage, as ſoon as her rigging and ſails are repaired.

The ardour and alacrity of my ſhip's company have never ſuffered the ſmalleſt diminution; and we ſhall all continue to contribute, with the moſt heart-felt ſatisfaction, to the ſucceſs of M. de la Pérouſe's expedition.

The firmneſs, the good ſenſe, and prudence of M. de Monti, contribute to the happineſs of every body, while his talents inſpire me with the greateſt confidence.

Since

Since I firſt entered into the ſervice, I have never met with ſo accompliſhed a ſea-officer as M. de Vaujuas.

M. Daigremont is a man of great judgment and firmneſs of mind. He turns his attention to aſtronomical obſervations, and will certainly become an adept in them.

M. de Blondela is an excellent ſea-officer, and a man of exemplary prudence and ſteadineſs. He employs his leiſure in drawing plans of ports, and in making deſigns equally pleaſing and natural.

The ardour of M. de Lauriſton, in acquiring the knowledge requiſite in his profeſſion, has never ſuffered a moment's abatement. He is become an excellent officer, and is capable of making the greateſt progreſs in aſtronomy: I now truſt to him for every thing that belongs to that department.

It is to the talents of theſe five officers, and to the harmony that prevails among them, that I am indebted for the rigorous punctuality with which the Aſtrolabe has kept in ſight of the Bouſſole during the darkeſt nights and thickeſt fogs. They take ſo much intereſt in the ſafety and preſervation of the ſhip, as well as in the ſucceſs of the voyage, that I have at preſent leſs occupation than any one of them.

I ſhall be completely happy if they receive at the

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Iſle of France the favours which you have allowed them to claim on their return.

I think, that M. de Vaujuas, who was at the head of the liſt of enſigns when you made him a lieutenant, and who is deſtitute of fortune, is deſerving of the penſion of eight hundred livres granted to the late M. d'Eſcures.

I think alſo, that M. de Lauriſton deſerves to take rank among the enſigns from the 13th of July, 1786, the day on which M. de la Pérouſe gave him his commiſſion.

It is impoſſible for me, ſir, ſufficiently to praiſe the amenity of manners, and all the good qualities of M. de Leſſeps.

Father Receveur performs his ſacred functions with great propriety. He is a man of pleaſing manners, and good underſtanding. At ſea he takes meteorological and aſtronomical obſervations; and in harbour attends to every thing relative to natural hiſtory.

M. de la Martinière applies himſelf to botany with a great deal of diligence.

M. Dufreſne has made himſelf uſeful by conducting our trade for otter ſkins; and has been very careful in their preſervation and ſale. As he is deſirous of returning to France; and as I conſider him as a man who can be of no farther ſervice to us, M. de la Pérouſe has given him leave to go home.

I have

I have a great deal to ſay in praiſe of M. Lavaux, my ſurgeon, and of M. Guillon, his mate, who have contributed much by their care and foreſight to the good health of my crew. As yet they have had a great deal of leiſure, which they employ when in harbour in botanical purſuits, and in making collections for the king's cabinet of natural hiſtory.

I have alſo to ſolicit your bounty in favour of M. Broſſard, who, after three years and a half's ſervice as volunteer in different ſhips, embarked as aſſiſtant pilot on board the Aſtrolabe. He has done the duty of ſecond pilot with great zeal and intelligence, ſince July the 13th, 1786. I entreat you to ſend a commiſſion of *lieutenant de frégate* to meet him at the Iſle of France.

Permit me alſo to recommend to you my pilot, gunner, carpenter, ſail-maker, and caulker. They are all old ſervants, who have given proofs of their ability and ſteadineſs, and who contribute in the higheſt degree to the good humour that prevails on board my ſhip, and to the good intelligence that is kept up between the different individuals of my crew. I ſay nothing of my boatſwain, becauſe I intend to give him his commiſſion of *entretenu*, if he continue to conduct himſelf with the ſame propriety as heretofore.

M. de Bellegarde has been turned over from the Marquis de Caſtries flute to the Aſtrolabe. He is a young

a young man, of whom M. de Richery ſpeaks in the higheſt terms. His rank is that of *garde de la marine.*

M. DE LA PEROUSE.

SIR, Macao, February 2, 1787.

I have often ſpoken to you of our furs; and have even informed you they were ſold. I had every reaſon to think ſo, as the bargain was concluded; but difficulties ſtarted by the purchaſers at the moment of delivery have broken it off. At one time I had reſolved to carry them to France, where I am convinced they would ſell with more certainty and to greater advantage than in China; but conſidering that my return to Europe is ſtill very remote, I have availed myſelf of the obliging offer made me by M. Elſtockenſtrom, director of the Swediſh company. He has been good enough to undertake to receive them into his charge, to ſell them for the benefit of the ſeamen, and to remit the money to the Iſle of France, where I intend to ſhare it among the crews, unleſs the orders you may ſend me to that colony, where I ſhall not arrive till two years hence, ſhould diſpoſe of it otherwiſe.

It is impoſſible for me to omit informing you, that the French nation has not at this moment a ſingle individual in China, capable of inſpiring me with

with ſufficient confidence for ſo trifling a depoſit. The two ſupercargoes of the company are out of their ſenſes. M. Thérien, the firſt, has ſhot himſelf; and M. Dumoulin, the ſecond, has committed ſuch acts of inſanity as in Europe would have inſured him a place in a mad-houſe. He nevertheleſs remains charged with concerns of conſiderable importance, becauſe nobody thinks himſelf properly authorized to diſmiſs him. The conſequence is, that all the commercial nations, even Denmark and Sweden, have men of the greateſt merit at Macao; while the French have the privilege of not having there a ſingle individual ſufficiently well-informed for a village-bailiff: I ſhall take the liberty of going more at large into this ſubject when I have the honour of writing to you from Manilla.

I forgot to tell you in my former letter, that I found in the road of Macao the Marquis de Caſtries *flûte*, commanded by M. de Richery, *enſeigne de vaiſſeau*. As this ſhip was diſpatched by Meſſieurs de Coſſigny and d'Entrecaſteaux, you will be informed by them of the nature of his miſſion; but I have taken upon me to turn over M. de Bellegarde to the Aſtrolabe, in the room of the three officers of that ſhip who were loſt on the coaſt of America, although he is only a *garde de la marine*.

M. DE

M. DE LA PEROUSE.

SIR, Manilla, April 7, 1787.

If your occupations have permitted you to caſt an eye over my narrative, I flatter myſelf you will have perceived, that we have neglected nothing to render our voyage uſeful and intereſting. Our chart of the north-weſt coaſt of America from Mount St Elias to Monterey will leave little to be done by future navigators. Our misfortune at *Port des Français*, far from diminiſhing our zeal, has only convinced us more ſtrongly of our duties towards our king and country, and we have conſtantly regretted, that no hope remains of meeting with a new continent, but only a few iſlands of little importance, which will add neither to our knowledge, nor to our commerce. You will have ſeen by the packets intruſted to M. Dufreſne, that, after having ſold our furs, I purpoſed ſailing for Manilla, in order to take proviſion on board, overhaul our rigging, repair our rudder, and put the ſhips into a condition to proſecute the voyage, by paſſing through the channel of Formoſa, and running along the weſt coaſt of Japan, and that of Tartary.

You will pleaſe to obſerve, ſir, that this part of my voyage has been generally conſidered as the

moſt difficult; and if we be fortunate enough to explore thoſe coaſts with the ſame care as that of America, we may boaſt of having been the firſt to perform a very difficult navigation in narrow ſeas, ſubject to violent tempeſts, entirely unknown, inveloped in fogs, and probably full of rocks and currents. All theſe difficulties only offer themſelves to our imagination, in order to call forth our prudence, and inflame our zeal.

I left Macao the 6th of February, and did not arrive at Cavite, in the bay of Manilla, till the 28th. The particulars of this run are not altogether unintereſting to navigation, and will ſerve to add a chapter to our narrative.

I preferred the harbour of Cavite to the road of Manilla, becauſe we are near an arſenal, and have all ſorts of ſuccour and aſſiſtance within our reach. They have been moſt laviſhly beſtowed upon us; and we are indebted to the orders of government, and ſtill more to the kindneſs of Mr. Gonſalez Carvagnal, intendant of the Philippines, for being likely to leave Cavite as well provided with freſh proviſion as when we ſailed from Breſt. I ſhall have the honour of ſending you from Kamtſchatka, agreeably to your orders, a circumſtantial memoir concerning Manilla, its reſources, its adminiſtration, the new company formed there, and the character of the adminiſtrators, who are far from having adopted the ſentiments of the cabinet of Madrid in favour

of the French. I muſt, however, except the intendant, from whom we have every moment received marks of the greateſt kindneſs, and who has not failed to go himſelf ſeveral times a day to all our contractors, leſt the well-known tardineſs of his countrymen ſhould occaſion any delay.

I ſhall ſail the 8th of April, although the north-eaſt monſoon will ſtill prevail; but I ſhall be in the way of availing myſelf of the firſt change of wind to get to the northward. Before my departure, I have had the ſatisfaction of ſeeing the *Subtile* frigate, commanded by M. de la Croix de Caſtries, arrive in the bay of Manilla. She was diſpatched by M. d'Entrecaſteaux in great meaſure with a view of making me acquainted with his proceedings on the coaſt of China, in order that they might not be counteracted by ours, in caſe our inſtructions ſhould enjoin us to navigate on the north coaſt of that empire.

M. d'Entrecaſteaux will give you an account of the revolt of the natives of Formoſa, and of his offers of aſſiſtance to the Chineſe in the reduction of the rebels. They were not accepted; and I confeſs that I ſhould have been grieved to ſee the French navy ſeconding the moſt iniquitous and oppreſſive government that exiſts upon the face of the earth. I can now without a crime offer up wiſhes to heaven for the ſucceſs of the Formoſians.

I have made anſwer to M. d'Entrecaſteaux, that

my navigation on the coaſt of China will not alarm that government; that I ſhall not ſhow my colours, and that I ſhall ſedulouſly avoid every thing that may give umbrage; adding, that, although a true-born Frenchman, I am in my preſent voyage a coſmopolite, entirely unconcerned in the politics of Aſia.

You addreſſed to me before my departure from Breſt, a memoir of M. Veillard, concerning Formoſa; but I found with aſtoniſhment at Macao, that this ſame M. Veillard had no knowledge of the country; that he could not anſwer any one of my queſtions; and that his memoir was a copy from a manuſcript in the poſſeſſion of all the Europeans at that place. Although it is foreign from the purpoſe of my voyage to enter into any details concerning the French of the factory at Canton, yet I feel that I ſhould not be worthy of the confidence you are pleaſed to repoſe in me, if I failed to inform you, that Meſſieurs Veillard, Coſtar, de Guignes, and Dumoulin, ought never to have been charged with the concerns of a great nation. I have been obliged upon every occaſion to apply to M. Elſtockenſtrom, who conducts the affairs of the Swediſh company.

I ſhall have the honour of writing you a particular letter upon this ſubject.

M. DE LA PEROUSE.

SIR, Manilla, April 7, 1787.

The arrival of M. de la Croix de Caſtries at Manilla has been one of the moſt fortunate events of our voyage. He has been kind enough, as I have already had the honour of informing you, to undertake to carry our furs to France, and has conſented in the moſt obliging manner to repair the loſſes we have ſuffered ſince our departure, by ſparing an officer and four of his ſeamen to each of our ſhips. In conſequence of this arrangement, M. Guyet de la Villeneuve, *enſeigne de vaiſſeau*, has been turned over to the Bouſſole, and M. le Gobien, *garde de la marine*, to the Aſtrolabe. This recruit was become the more neceſſary, becauſe a few days ago we had the misfortune to loſe lieutenant Daigremont of the Aſtrolabe, who was carried off by a dyſentery; and becauſe the bad ſtate of M. de Saint-Ceran's health has obliged me to ſend him to the Iſle of France for his recovery, all the ſurgeons having declared, that it was impoſſible for him to continue the voyage. This makes a diminution of eight officers ſince our departure from France, ſeven of whom no longer exiſt, and the eighth is in a very bad way. The only perſons, however, who

for two years paſt have died a natural death, were a ſingle officer and a ſervant. Both belonged to the Aſtrolabe, the crew of which has nevertheleſs enjoyed in general ſtill better health than that of the Bouſſole.

M. DE LA PE'ROUSE.

SIR, Avatſcha, Sept. 10, 1787.

I flatter myſelf you will peruſe with pleaſure the particulars of our voyage from Manilla to Kamtſchatka. Our ſhips have taken a route entirely unknown. They have paſſed between Corea and Japan; run along the coaſt of Tartary to the neighbourhood of the river Segalien; reconnoitred the Oku-Jeſſo, and the Jeſſo of the Japaneſe; and diſcovered new ſtraits for ſailing out of the ſea of Tartary. Our diſcoveries are connected with, and have eſtabliſhed the truth of, thoſe of the Dutch, which the greater number of geographers were beginning to reject, and which the Ruſſians had thought it moſt expedient to expunge from their charts. At length, after clearing the land to the north of the Company's Land, we ſteered a courſe for Kamtſchatka, and anchored in the bay of Avatſcha, after a run of a hundred and fifty days, of which we paſſed a hundred and forty under

under ſail. We have not, however, a ſingle perſon ſick on board of either frigate, although we have been conſtantly navigating in the midſt of the thickeſt fogs. Obliged every moment to anchor and to get under way again, with a degree of fatigue of which captain Cook's voyages afford few examples, our cares for preſerving the health of our crews have as yet been attended with ſtill greater ſucceſs than thoſe of that celebrated navigator, not a ſingle man having died in twenty-ſix months ſince our departure from Europe, on board the Bouſſole, and both ſhips being at this moment entirely free from ſick.

I remember, ſir, that when my inſtructions were delivered to me, you remarked, that this part of our voyage was not more difficult than intereſting, ſince it could not be of leſs importance to geographers to know the limits of the continent we inhabit, than thoſe of the ſouthern continent, or the north-weſt coaſt of America. We have been fortunate enough to reſtore to geographers two iſlands as conſiderable in extent as the Britiſh iſles, and at length to decide the only geographical problem that remained perhaps to be ſolved concerning the globe. It is now only that I dare to place our voyage next to thoſe of captain Cook. If death had not put a ſtop to the career of that great man, it is probable, that he would not have left the ſurvey of the eaſtern coaſt of Tartary to his ſucceſſors. If your occupations ſhould

permit you, ſir, to caſt an eye over the different chapters of my narrative, you will there find, along with nautical details, all the obſervations that I have had an opportunity of making upon the nations we have viſited, and upon the ſoil and productions of their country. I have endeavoured to paſs over nothing relative to commerce that could be intereſting to the government, not forgetting, at the ſame time, that it was neceſſary to occupy the leiſure of the learned, who are perhaps waiting for our return in order to publiſh new ſyſtems. I have added to my narrative all the charts, plans, and tables of latitude and longitude, that are neceſſary, as well as the drawings of Meſſieurs Duché and Blondela, for the truth of which I can vouch.

I have alſo the honour to tranſmit to you two memoirs concerning Manilla and Formoſa. Both relate to the political part of my inſtructions, and are very conciſe, becauſe I know the value of your time, and becauſe they only contain what I did not think proper to inſert in my narrative. I could not venture to truſt them to the poſt; and make no doubt but you will approve of my diſpatching M. Leſſeps, our Ruſſian interpreter, to France. I have conſidered, that his pay and allowance till our return to France would coſt nearly as much as his journey from Kamtſchatka to Paris; and I ſhould regret taking into the ſouthern hemiſphere a young man, who is deſtined on ſome future day to fill the

office

office of conſul, and who would loſe on board of ſhip a great deal of time that he may employ much better in gaining information. I have given him charge of my packets, and flatter myſelf, that by the time he reaches you the ſhips will be at New Zealand.

In a few days I ſhall have the honour of addreſſing to you a letter relating ſolely to the further plan of my voyage. It will in all take up nearly four years, during which we ſhall have been at leaſt thirty-eight months under ſail; a thing perhaps unexampled in the whole hiſtory of navigation.

M. DE LA PE'ROUSE.

SIR, Avatſcha, September 21, 1787.

I have had the honour to tranſmit to you, by the hands of Meſſieurs Dufreſne and Leſſeps, a narrative of our voyage from our departure from Breſt till our arrival at Kamtſchatka. It remains for me to inform you of my project for our future proceedings, ſince I have availed myſelf of the permiſſion you gave me to make ſuch changes in the plan of my voyage as might appear adviſable, conforming at the ſame time, as much as poſſible, to my inſtructions. I have in conſequence thought proper,

proper, to begin with the northern hemiſphere, and to finiſh with the ſouthern, in which is ſituate the Iſle of France; the place that I look upon as the period of my labours.

I flatter myſelf, that I have entirely and completely fulfilled all you expected from me till this moment, and I have been ſo perfectly well ſeconded by M. de Langle, that if the voyage have any merit in your eyes, he ought to partake of the reward. The two ſhips, notwithſtanding the fogs, have ſailed with ſo much concert, and ſo cloſe together, that it might almoſt be ſaid that there was only a ſingle veſſel, and a ſingle captain employed on the expedition. I intend to leave the bay of Avatſcha on the 1ſt of October. I ſhall direct my courſe ſo as to reconnoitre the northerly Kurile Iſlands as far as to the Canal de la Bouſſole, whence I ſhall run into the 37th parallel of latitude, in order to ſeek the land ſuppoſed to have been diſcovered by the Spaniards in 1610. I do not believe in the exiſtence of this land, which is very near the uſual track of the galleons, and of which I am inclined to think, from all the information I have been able to collect, that the Spaniards have no knowledge. From the 37th parallel I ſhall direct my courſe towards the Archipelago that lies north of the Mariannes, and ſhall follow that chain of iſlands as far as Guam, where I ſhall put in for five days only, in order to take in as much fruit, and as many oxen, as may preſerve

our

our crews from the ſcurvy during the ſequel of our very long voyage.

From Guam I ſhall ſteer for the Caroline Iſlands, provided the information I may procure afford any certainty of my making Cape Choiſeul of the *Terre des Arſacides*, and of my being able to ſail through the ſame channel as M. de Bougainville, in order to get to the ſouthward, and afterwards to bear away with the weſterly winds for Queen Charlotte's Sound in New Zealand *, about the 20th of January 1788. If, on the contrary, my own obſervations and reſearches ſhould prove the inexpediency of my taking that route, I ſhall give up the idea of exploring the Carolines, which would oblige me to run a hundred and fifty leagues to leeward of the Mariannes, and I ſhall ſteer directly from Guam to New Zealand, keeping as much as poſſible to the eaſtward; and in this track, which will be abſolutely new, it is probable that I ſhall find a variety of iſlands ſtill more intereſting than the Carolines, and certainly leſs known. I ſhall employ more or leſs time in viſiting them, it not being neceſſary, in either caſe, that I ſhould arrive at New Zealand before the 20th of January 1788. From

* In another letter, dated September 28, la Pérouſe acknowledges his receiving letters from the miniſter on the 26th at Kamtſchatka; and ſays that he ſhall only alter the plan of his voyage by not going to New Zealand, in order that he may have more time to ſurvey the coaſts of New Holland, and the ſettlement of the Engliſh there. *(Fr. Ed.)*

Queen

Queen Charlotte's Sound I ſhall make a run to the Friendly Iſlands, and ſhall do every thing that I am enjoined by my inſtructions, in regard to the ſouthern part of New Caledonia; to the iſland of Santa Cruz of Mendana, on the ſouth coaſt of the *Terre des Arſacides*; and to Bougainville's Louiſiade, by determining whether it be part of New Guinea, or ſeparated from it. At the end of July I ſhall paſs between New Guinea and New Holland, by a different channel from that of the Endeavour, provided, however, that ſuch a one exiſt. During the months of Auguſt, September, and part of October, I ſhall viſit the gulph of Carpentaria, and the coaſt of New Holland, but in ſuch a way that it may be poſſible for me to get to the northward, and to arrive at the beginning of December, 1788, at the Iſle of France. I ſhall ſail thence very ſpeedily, in order to reconnoitre Bouvet's pretended Cape Circumciſion, and ſhall arrive in France (after having put in or not at the Cape of Good Hope, according to circumſtances) in June 1789, forty-ſix months after my departure.

I flatter myſelf you will ſee with pleaſure, that in the courſe of ſo long a voyage I ſhall have no occaſion to put in at thoſe everlaſting Society Iſlands, about which more has been written than concerning ſeveral kingdoms of Europe; and I confeſs to you, that I congratulate myſelf on having nothing to ſay either about Otaheite or Queen Oberea. I have, indeed,

indeed, taken particular care to keep out of the track of preceding navigators.

M. DE LA PE'ROUSE.

SIR, Avatſcha, September 25, 1787.

You know that our misfortunes on the north-weſt coaſt of America have rendered null almoſt all the favours you were pleaſed to grant to the commiſſioned officers of the two frigates. Meſſieurs d'Eſcures, and Pierrevert, had each a penſion, which might be given to Meſſieurs de Vaujuas, and Boutin, officers of equal merit, and equally remarkable for talents, activity, and zeal. Meſſieurs de Bellegarde and le Gobien, *Gardes de la Marine*, whom you have made the aſſociates of our labours, and who teſtified both at Manilla and Macao ſo ſtrong a deſire to fill the places of the officers whom we have had the misfortune to loſe, will have well deſerved, on their arrival at the Iſle of France, the commiſſions of enſign that had been granted to Meſſieurs de Boutervilliers, de Flaſſan, and de Montarnal. Lieutenants de Blondela and Colinet, to whom you have permitted me to give hopes of the rank of captain of a fire-ſhip on their return, have already by their good conduct merited that favour, which I entreat you to tranſmit to the Iſle

of

of France, with M. de Monti's commiſſion, and a letter of approbation to M. de Clonard. The laſt-mentioned officer having been promoted to the rank of poſt captain, has nothing farther to deſire; but he has continued to do the duty of lieutenant, and to attend to the moſt minute particulars of ſervice with a degree of zeal and diligence deſerving the higheſt praiſe; and did I not fear to incur ſuſpicion becauſe he is my particular friend, I would be bold to ſay, that it is impoſſible to meet with a better officer, or a man of more honour and virtue.

I have alſo much to ſay in praiſe of M. Guyet de la Villeneuve, who was turned over at Manilla from the frigate of M. de la Croix de Caſtries to mine, in the room of M. de Saint-Ceran, whoſe extreme bad health forced me to ſend him to the Iſle of France, and alſo of Meſſieurs Mouton and Broudou, to whom I have given the lieutenants commiſſions that you were pleaſed to deliver to me in blank before my departure.

M. de Langle has given up his aſtronomical labours to M. de Lauriſton, a young man of great talents, zeal, and merit. He has made a pupil of him, who ſtands no longer in need of a maſter. M. Darbaud has alſo ſerved as an able ſecond to M. Dagelet, and I am perſuaded, that there is not perhaps in France any young man of his age, who is equally well informed.

M. Dagelet does here the ſame buſineſs as ourſelves,

ſelves, and, no doubt, does it better than we do; among a thouſand good and amiable qualities, I know of no fault in him but that of a weak conſtitution.

As to M. de Langle, he is above all praiſe; and I wiſh from my heart that he may arrive at high rank, before years and fatigue have diminiſhed his energy and powers.

M. Rollin, doctor of phyſic, and my ſurgeon, is a man of uncommon information. By his attention he has preſerved us from the ſcurvy, and all other diſeaſes. You have authoriſed me, ſir, to promiſe him a penſion on his return, provided the mortality on board my frigate ſhould not exceed three in a hundred; and during twenty-ſix months that have elapſed ſince our departure, nobody has died a natural death on board the Bouſſole; or have we a ſingle ſick man in the ſhip.

M. de Langle is alſo very well ſatisfied with M. Lavaux, his ſurgeon. He has only loſt a conſumptive ſervant, and M. Daigremont, who killed himſelf by attempting to cure a dyſentery with burnt brandy. The purſer's ſteward *(commis du munitionnaire)* is alſo dead in conſequence of his ſkull being fractured by the burſting of a muſket.

M. DE LANGLE.

SIR, Avatſcha, September 25, 1787.

The fogs in which we have been almoſt conſtantly enveloped ſince our departure from Manilla have very much impaired the rigging of the Aſtrolabe. I hope, however, with the ſpare cordage I have on board, to be able to carry her into the Iſle of France at the time fixed upon in the plan of the voyage. In other reſpects my ſhip is in good condition.

I have always ſailed during the fogs within hail of the Bouſſole, becauſe M. de la Pérouſe has made a point of keeping me company, and becauſe my officers have piqued themſelves on not loſing the commodore. I wiſh it were poſſible to add to the praiſe I have already given to their talents, to the patience with which they wait for the end of the voyage, and to their deſire of making new diſcoveries.

The intereſt I feel in the glory of the nation, and in the ſucceſs of M. de la Pérouſe, induces me to mention to you how much room we have to congratulate ourſelves on having ſo happily finiſhed our difficult

difficult and perilous navigation on the coaſt of Aſia, thanks to the indefatigable vigilance, prudence, and talents, of our commander. I ſhall always think it my duty to ſecond his efforts, as well out of zeal for the progreſs of geography, as out of gratitude for the proofs of friendſhip which he has given me at all times. I know alſo that you take an intereſt in the ſucceſs of our voyage. Nothing can make me forget the favours with which you have honoured me, and I have nothing more at heart than to merit a continuance of them.

M. DE LA PÉROUSE.

SIR, Avatſcha, September 27, 1787.

M. Leſſeps, to whom I have given charge of my packets, is a young man, whoſe conduct during the whole voyage has been perfectly to my ſatisfaction; and I make a real ſacrifice to my friendſhip for him by ſending him to France; but, as he is probably deſtined on ſome future day to fill his father's place in Ruſſia, I thought that a journey acroſs that vaſt empire might furniſh him with information uſeful to our commerce, and proper to ſtrengthen our connexion with a ſtate, of which the productions are ſo ſerviceable to our navy.

It appears to me, that M. Leſſeps ſpeaks the Ruſſian tongue with as much facility as French. He has rendered us the greateſt ſervices in Kamtſchatka; and if the reverſion of his father's place of conſul-general at Peterſburg were to be the reward of his voyage round the world, I ſhould conſider the favour as a proof of your being ſatisfied with our conduct.

M. DE LA PÉROUSE.

SIR, Botany Bay, February 5, 1788.

By the time this letter reaches you I flatter myſelf that you will have received the journal of my voyage from Manilla to Kamtſchatka, which I had the honour of tranſmitting to you by the hands of M. Leſſeps, who ſet off for Paris, from the harbour of St. Peter and St. Paul, on the 1ſt of October 1787. That part of our expedition, though by far the moſt difficult, becauſe performed in ſeas abſolutely new to navigators, was nevertheleſs the only one in which we met with no misfortune. The moſt dreadful diſaſter awaited us in the ſouthern hemiſphere. I can only repeat here what you will

find more at length in my journal. Meſſieurs de Langle and de Lamanon, with ten other perſons, have fallen victims to their humanity. Could they have prevailed on themſelves to fire upon the natives before they were ſurrounded by them, our long-boats would not have been broken to pieces, or would the king have loſt one of the beſt officers in the navy.

Although that event very much diminiſhed the crew of the two ſhips, I did not think proper to alter the further plan of my voyage; but I have been obliged to explore ſeveral intereſting iſlands in the South ſea more rapidly than I ſhould otherwiſe have done, in order to have time to conſtruct two long-boats at Botany Bay, and to reconnoitre the different points indicated in my inſtructions, before the change of the monſoon, which would render ſuch a ſurvey impoſſible.

We are arrived at New Holland without having a ſingle perſon ſick in either ſhip. Eighteen of the twenty wounded that we had on board on leaving Maouna are perfectly recovered; and M. Lavaux, ſurgeon of the Aſtrolabe, and a ſailor belonging to that frigate, who were both trepanned, are now in a fair way of doing well.

M. de Monti, who was ſecond captain with M. de Langle, kept the command of the Aſtrolabe till our arrival at Botany Bay. He is ſo good a ſeaman,

that I did not think it neceſſary to make any change among the commiſſioned officers till we came into port, where it was impoſſible for me to overlook the claims of M. de Clonard, who has the rank of poſt-captain. He is ſucceeded on board my ſhip by M. de Monti, whoſe zeal and talents are ſuperior to all praiſe, and whoſe good conduct entitles him to the commiſſion of poſt-captain, which you had the goodneſs to promiſe, in caſe the report made of him ſhould be of a favourable kind.

The Engliſh arrived but five days before us at Botany Bay. To the moſt pointed attentions they have added all the offers of ſervice in their power; and we had to regret their ſetting off, immediately after our arrival, for Port Jackſon, fifteen miles to the northward of Botany Bay. Commodore Phillips had good reaſon to prefer that port, and has left us alone and maſters of this bay, where our long-boats are already upon the ſtocks. I expect to launch them at the end of the month.

We are only ten miles diſtant from the Engliſh by land, and conſequently have it in our power to communicate with them frequently. As it is poſſible, that commodore Phillips may make excurſions to the iſlands of the South ſea, I have been induced to give him the latitude and longitude of Maouna, that he may be upon his guard againſt the perfidious careſſes of the natives, in caſe his veſſels

ſhould

ſhould touch there in the courſe of their navigation *.

M. DE LESSEPS.

SIR, Verſailles, October 31, 1788.

On my arrival at Kamtſchatka, I endeavoured to procure the particulars of a ſecret expedition fitting out at Okhotſk; and of the motives of the voyage. Some notions which I acquired in paſſing through that port may perhaps gratify your curioſity, and ſerve as a teſtimony of my deſire to do every thing that may give you ſatisfaction. I take the liberty of adding to it ſuch other information as I preſume to be new, and conſequently deſerving of your attention.

Mr. Billings, who ſerved with Cook in his laſt voyage in quality of aſſiſtant aſtronomer, was ſent from England to command the expedition, the empreſs having applied for a perſon verſed in that department of the ſciences. Her imperial majeſty conferred upon him the rank of captain of a ſhip of

* Here in the original follows a ſhort extract of a letter from M. de la Pérouſe, which being included *verbatim* in the letter dated Avatſcha, September 21, is of courſe omitted. T.

the ſecond rate, and gave him *carte blanche*, and a right to examine the ſituation of all Siberia. She was at great expence in conſtructing and fitting out two veſſels at Okhotſk; officers being ſelected from the Ruſſian navy, and ſent under Mr. Billings's command to that place, in order to aſſiſt in their building and equipment. There was even ſome idea of their ſailing at the time of M. de la Pérouſe's departure, ſince he was told, that he might poſſibly meet with them in the northerly part of the South ſea. I found the armament, however, ſo little advanced when paſſing through Okhotſk on the 8th of May of the preſent year, that the frame of one ſhip was hardly finiſhed, and the other was only juſt laid down upon the ſtocks. According to all probability, theſe ſhips will ſcarcely be able to put to ſea in the year 1789. In order to loſe no time, Mr. Billings determined to equip ſome ſmall veſſels or ſloops upon the river Kolumé, and after having ſailed down that river in 1787, made a voyage in the frozen ocean. I imagine, that it was his intention to go by ſea to Kamtſchatka, and to double Capes Svetoi and Tchukotſkoi, the firſt being the only obſtacle that ſeveral navigators had already met with in their voyages. Mr. Billings was not able to overcome it, the ice probably hindering him from getting round Cape Svetoi. He returned to the river Kolumé at the latter end of the ſame year. The ice driſted by the northerly winds towards the

coaſt

coaſt often forced him to approach it; and he took advantage of the ſoutherly gales to continue his voyage, the ſea being then more free. Nobody is yet acquainted with the deſtination of the two ſhips at Okhotſk, under the command of Mr. Billings. It is poſſible, according to reports circulated in the country, that he means to paſs Behring's ſtraits in order to accompliſh his firſt deſign, or elſe to run along the north-weſt coaſt of America. His ſecret is, however, ſo ſcrupulouſly kept, that my conjectures have by no means a ſolid foundation.

Herewith I take the liberty of ſending you two charts, which I found means to procure at Okhotſk. I beg leave to requeſt your acceptance of them; and, as I would not take upon me to copy them, I intreat you will be pleaſed to give orders that copies may be ſent to me.

The firſt is a general chart containing the eaſtern part of Aſia, ſome of the Aleutian iſlands, Kamtſchatka, the ſeas of Okhotſk and Penſchinka, the Kurile iſles, the extent of the Ruſſian diſcoveries, and alſo the little they know of Segalien iſland, of the land of Jeſſo, and of the Coaſt of Tartary. The other chart appears romantic, and is ſo in reality; but notwithſtanding its ſingularity, I thought, ſir, that it might chance to afford you pleaſure. Beſides, I am aſſured, that the Kurile iſlands are exceedingly well laid down; and I have

tranſlated the articles neceſſary to render the chart intelligible. Neither the perſon who conſtructed it, nor the navigator who made the voyage, is known. The deſcription, which I think very improbable, as well as the chart, was copied after the original left at Okhotſk, where I met with nothing that was more intereſting.

Several veſſels were wrecked laſt year upon the coaſt of Kamtſchatka, or in the environs. Among others that met with this misfortune was a veſſel belonging to Mr. Lanz, an Engliſh merchant, and commanded by captain Peters. She went to pieces upon Copper Iſland. A Portugueſe and a Bengal black were the only two perſons, who ſaved their lives; and after having paſſed the winter in the iſland, were brought to Kamtſchatka by the Ruſſians. They are to be ſent this year to Peterſburg, and will probably be there in two or three months. The captain, when he firſt put in at Kamtſchatka, entered into engagements with a merchant of the country to the amount of about 80,000 rubles; and by means of the ſame Ruſſian ſent to aſk permiſſion of the empreſs to trade in that part of her dominions. The return of this veſſel was expected at Kamtſchatka; but captain Peters had been in the mean time to make a voyage to the north-weſt coaſt of America, probably with a view of procuring furs; and it was not till his return, and at a very

very ſmall diſtance from the harbour of St. Peter and St. Paul, that he loſt his ſhip and life. He conſequently could not enjoy the permiſſion for which he had aſked, and which was granted without heſitation.

I alſo met with nine Japaneſe at Kamtſchatka, who, by a gale of wind and the want of a compaſs, had been driven from the coaſt of their own iſland, of which its inhabitants take great care never to loſe ſight. They kept the ſea ſix months in a little coaſting veſſel, the firſt land they made being the Aleutian iſlands, where they caſt anchor with all ſpeed, went on ſhore, and abandoned their veſſel to its fate. Neither the night, nor the appearance of bad weather, nor the efforts of the Ruſſians they found there, could prevail upon them to return on board in order to land their cargo, or to put their veſſel in a place of ſafety. Overjoyed at finding themſelves once more on land, they thought no more about it, and left it expoſed to the fury of the wind, which during the night drove it upon the coaſt. A very ſmall part of their effects were ſaved. Of theſe the Ruſſians took charge, and conveyed them to Kamtſchatka in the veſſels which they ſend in queſt of furs. They carried thither alſo the nine Japaneſe, who are treated with particular kindneſs, and are ſpeedily to be ſent to Peterſburg.

I have

I have the honour to inform you, that the vocabulary of the Kamtſchadale language, made by requeſt of M. de la Pérouſe, is as perfect as it was poſſible for me to make it. It is at your ſervice and at his: but have the goodneſs to permit me to inſert it in my journal. It will perhaps render it more intereſting. According to your orders, I am at work upon it with the greateſt ardour; happy that it will be ſoon in my power to preſent you with it, and to render myſelf more worthy of your protection.

M. de la Pérouſe recommended to me in my inſtructions to remind you of the obligations he lies under to colonel Kaſloff-Ougrenin, commandant of Okhotſk and Kamtſchatka, who refuſed to receive any payment for ſeven oxen which he furniſhed to our crew. He would alſo have wiſhed to furniſh the rye-meal for which M. de la Pérouſe had applied; but unfortunately there was not any in the magazines of Kamtſchatka. Mr. Vaſili-Schmaleff, already known by the narrative of Cook's voyage, and at preſent inſpector-general of Kamtſchatka, has alſo done us many good offices, as well as enſign Kaborof, commandant of the harbour of St. Peter and St. Paul. M. de la Pérouſe ſays, that he was as well received by them as if they had been his own countrymen, and that he wiſhed much, while teſtifying his gratitude to the court of Ruſſia, to procure

theſe

theſe gentlemen a reward proportionate to their ſervices. Beſides, you know that the Engliſh on their return made many preſents to major Behm, then commandant of Kamtſchatka, as well as to the other Ruſſian officers of that peninſula; and we have reaſon to believe, that they were not ſo well treated as we. I am obliged to the above officers for having aſſiſted me in my journey over-land, and will venture to ſay, that they afforded me every aſſiſtance in their power. Mr. Kaſloff, who is much attached to me, gave me a note of what he expected from the bounty of the empreſs. If you think fit, I ſhall be happy to deliver it to you.

EXTRACTS

Of Letters from Meſſieurs de la Pérouſe and Dagelet, to M. Fleurieu.

M. DE LA PÉROUSE.

Macao Road, January 3, 1787.

I SEND you a plan of Monterey, drawn by ourſelves. I have had an opportunity at that place of becoming acquainted with ſeveral officers of the little navy of San-Blas, who certainly are not wanting in information, and who appeared to me to be fully capable of conſtructing charts with preciſion.

You will ſee, that I have ſeveral times changed the plan of my voyage, according to the ſuggeſtions of reflection and experience. It is only in this manner, that a plan ſo vaſt as ours can be executed.

For inſtance, I directed my courſe from the Sandwich iſlands directly for Mount Saint Elias, becauſe, if I had begun with Monterey in order to ſail northward afterwards, I ſhould have met with a conſtant oppoſition from the north-weſt wind; whereas the ſame wind enabled me, when ſtanding to the ſouthward, to range along the coaſt of America, and to follow it at pleaſure. But the fogs are an obſtacle inceſſantly ſpringing up, and occaſion the loſs of

a great

a great deal of time, which we are obliged to give to prudence. I do not think, that there is any ſuch thing as reckoning upon three clear days in a month. The currents are very violent, and alſo make it neceſſary to proceed with great caution. At *Port des Français* they cauſed the misfortune, with which my letters have made you acquainted, and which will be to me an everlaſting ſubject of regret.

I do not know whether you will be ſorry for my not having been more particular in viſiting the Archipelago of St. Lazarus, if indeed that name ought to be retained, which is certainly contrary to my opinion. But recollect, that I only diſcovered the entrance of it at the end of Auguſt, that the days were growing very ſhort, and that we met with continual fogs, and with currents off Cape Hector that ran more than ſix knots (miles) an hour. It was therefore impoſſible to make our way between all the iſlands in the ſpace of two or three months; and as early as the beginning of September the ſeaſon is at an end. To make ſuch a ſurvey complete would require an expedition having no other object in view, and, at leaſt, of two or three years duration. Nothing is ſo tedious as to examine in detail a coaſt which is thick ſown with iſlands, and deeply indented with gulphs, andwhich you are forbidden to approach, without the greateſt caution, by frequent fogs, and by currents equally violent and uncertain. However this may be, I have no doubt

of the voyage of admiral de Fuentes, in the ſhape, at leaſt, in which it is given to the public, being an exaggeration, if not a *reverie*. So prodigious a ſpace cannot be run over in the ſhort time which he is ſaid to have taken. I am therefore tempted to believe, that both the admiral, and his captain Bernarda, are chimerical beings, and the voyage attributed to them a fiction. It is not the leſs true, that from Croſs Sound, as far as Cape Fleurieu, the great Spaniſh navigator Maurelle, captain Cook, and myſelf, have only coaſted along iſlands at forty or fifty-five leagues diſtance from the continent, of which I got ſight again at the cape I have juſt mentioned. Theſe iſlands are, for the moſt part, of great extent; and as they are ſhut in with one another, their poſition gives them the appearance of an uninterrupted coaſt. I had ſeveral times ſuſpected, that the land I ſaw was not all connected; but my ſuſpicion was changed into certainty, when, after having doubled Cape Hector, I had run twenty leagues to the northward. All theſe details are given upon a ſuppoſition, that you have before you the charts and plans I ſend you, and that you follow my route while reading my narrative. . . . . .

You muſt be ſenſible, that, after all, but few details can be expected from us. In order to run over all the points indicated by my inſtructions in the ſpace of four years, it is neceſſary, that we ſhould not loſe a ſingle day. But our voyage will afford a proof, that

that it is poſſible for the health of a ſhip's company not to be injured by the longeſt ſtay at ſea. We are arrived at Macao without having a ſingle man attacked by the ſcurvy; and yet out of eighteen months that the voyage has already laſted, fifteen have been employed in a very laborious navigation, which has carried us ſucceſſively into climates of the moſt oppoſite kinds.

I write to you in haſte, without the leaſt order; and throw my ideas upon paper as faſt as they occur. I am anchored at five miles diſtance from the town, with which I have not yet had any intercourſe; and as I am told, that a ſhip is to ſail to-morrow for Europe, I write my diſpatches poſt-haſte. I annex my narrative, my charts, and my plans, to the letters I am writing to the miniſter. I ſhall tranſmit to him duplicates by the firſt opportunity that offers, that navigators may at leaſt profit by the beginning of our voyage, in caſe any misfortune ſhould befall us upon the coaſt of Tartary. In looking over my different chapters you will certainly remark with pleaſure, that though the ſavages we have viſited have done us ſome harm, we have been fortunate enough not to do them any miſchief. You well know, that I am expreſsly enjoined not to uſe violence againſt them but at the laſt extremity; and you alſo know, that the principle of forbearance is engraven upon my heart.

P. S. We have purchaſed, upon the coaſt of North

North America, near a thouſand otter ſkins; but the greater part were in ſhreds, and almoſt rotten. I thought it incumbent on me to carry on our commerce with a ſcrupuloſity and delicacy, of which none of the navigators who have landed on that coaſt have ſet me an example. Not a ſingle ſkin was bought by any body but M. Dufreſne. I charged him to conduct our trade, and he acquitted himſelf of his delicate commiſſion with equal zeal and intelligence. He numbered and regiſtered every ſkin, one after another; and is going to ſell them here for the benefit of our crews. I ſhall tranſmit an account to the miniſter, as a ſupercargo would to his owner; and I ſhall annex the receipts of thoſe to whom any money may be paid. I would not ſuffer a ſingle ſkin to be reſerved either for the commiſſioned officers, the men of ſcience, the artiſts, or myſelf. The profit of the voyage will go entirely to the ſailors*: and the glory, if there be any, will fall to the lot of the officers who have conducted the expedition, and of their co-operators. I confeſs, my dear friend, that I would not have made this voyage for a hundred thouſand crowns counted down to me; but I undertook it out of a ſenſe of duty, and out of gratitude for the confidence that was placed in my zeal, no doubt, rather than in my talents.

* The ſkins were ſold for 10,000 dollars, for the benefit of the crews.

Manilla

Manilla, April 8, 1787.

I will not, my dear friend, give you any account of my voyage. You have before your eyes my letters to the miniſter; and I flatter myſelf that you have not peruſed my narrative without intereſt. You will, no doubt, have remarked, that we are certainly the firſt navigators who have, in the ſame year, gotten as far as Mount Saint Elias, after having viſited Eaſter Iſland, and the Sandwich group, and endeavoured to clear up ſeveral points of geography. Our charts, plans, journals, tables of route, &c.—every thing will prove to you, that we have neglected nothing, that could inſure the accuracy of our different obſervations.

What remains for us to do this year is more difficult ſtill; all the information we have been able to procure in China concerning the part of the coaſt of that empire, which we are going to ſurvey, conſiſting in a certainty, that the currents run with great violence through the ſtraits; that many ſhoals are met with there; and that fogs prevail almoſt without intermiſſion.

But as I know, that every thing is to be accompliſhed by patience and perſeverance, theſe obſtacles ſerve only to inflame my zeal, at the ſame time that I have the greateſt confidence in my good fortune.

Avatcha, September 7, 1787.

The letter I am about to write to you, my dear friend, will be compoſed without any ſort of order; but I ſhall endeavour to forget no part of what I have to ſay.

The miniſter has, no doubt, received, by the hands of M. Dufreſne, the particulars of our voyage from our departure from France, to our arrival at Macao; and I am now about to deliver to M. Leſſeps the ſequel of my narrative from Macao to Kamtſchatka.

I hope you will be ſatisfied with the part of our voyage between Manilla and Kamtſchatka. It was the moſt new, the moſt intereſting, and certainly the moſt difficult to perform, on account of the everlaſting fogs which envelop the land in the latitudes we ſailed through. Theſe fogs are ſuch, that I was obliged to conſume a hundred and fifty days in exploring a part of the coaſt, which captain King, in the third volume of captain Cook's laſt voyage, ſuppoſes it poſſible to examine in the ſpace of two months. I ſtayed, however, only three days in *Baie de Ternai*, two in *Baie de Langle*, and five in *Baie de Caſtries*. I did not then loſe any time; and, after all, I neglected making the circuit of the iſland of Chicha by ſailing through the ſtraits

of

of Sangaar. I ſhould even have been deſirous of anchoring at the north point of Japan, although ſuch a ſtep would have required much previous conſideration, becauſe it is probable, that my boat would have been ſtopped. An event of that kind, which may be looked upon as of trifling importance when a merchant veſſel is concerned, might be regarded as a national inſult, in caſe of the boats belonging to a king's ſhip. The taking and burning a few *ſhampans* would be but a poor compenſation in dealing with a nation, that would not give a ſingle European they might wiſh to make an example of for a hundred Japaneſe. However this may be, I had it not in my power to ſend a boat to the coaſt of Japan; and it is impoſſible for me to judge how I ſhould have acted if the contrary had been the caſe.

I ſhould find it difficult to deſcribe to you the fatigue of this part of my voyage, during which I did not once undreſs myſelf; or did a ſingle night paſs without my being ſeveral hours upon deck. Figure to yourſelf ſix days of fog, with only two or three hours of clear weather, in very narrow ſeas, entirely unknown, and where the navigation, in conſequence of the information we had received, embodied dangers and currents that did not always exiſt. From the place where we made the land upon the coaſt of eaſtern Tartary, to the ſtraits that we diſcovered between the iſlands of Tchoka and Chicha, we did not omit taking the bearings of a ſingle

point; and you may be aſſured that neither creek, nor port, nor river, eſcaped us. You may alſo depend upon it, that there are many charts of the coaſt of Europe leſs exact than thoſe we ſhall bring with us on our return *; for the chart annexed to this may be ſaid to be no better than a ſketch, carefully drawn indeed, but liable to an error of perhaps ten or twelve miles of longitude in the poſition of ſome of the points. I have taken, beſides, all poſſible pains to give a true idea of the nations which inhabit thoſe iſlands and the adjacent continent.

We have then at length decided the famous queſtion of the lands of Jeſſo, of Oku-Jeſſo, of the ſtraits of Teſſoy, &c. which has attracted ſo much of the attention of geographers.

The Ruſſians had found it more convenient to expunge thoſe two great iſlands from their charts, although they have ten times more ſurface than all their Kuriles put together, which are nothing but barren rocks, with a population not exceeding three thouſand ſouls. The fogs hindered me from taking the bearings of the Kuriles lying north of Mareckan as far as the point of Lopatka; but I purpoſe making that ſurvey on leaving the bay of Avatſcha, although it appears to me of little importance. The

* Unfortunately theſe charts never came to hand, but ſhared the fate of our navigators; but what la Pérouſe ſays of that which we poſſeſs, diminiſhes the loſs that geography has ſuſtained. *Fr. Ed.*

Engliſh

Engliſh having determined the poſition of the point of Paramouſir, and we that of the north point of Mareckan, the intermediate iſlands cannot be laid down upon the chart with any material degree of error.

You will perceive, that our diſcoveries in this part connect wonderfully well with thoſe of the Dutch, whoſe navigation was perhaps the moſt exact of any that had been made at the time of the Kaſtricum's voyage. You will find among the charts which I tranſmit to the miniſter the one you gave me of the diſcoveries of captain Uries. He did not ſuſpect, that there was a ſea behind the land he was coaſting along, and ſtill leſs, that there was a ſtrait to the north of the village of Acqueis, abreaſt of which he was anchored. It may be inferred from his narrative, that the people of Chicha, and thoſe of Tchoka, are preciſely the ſame, ſince, after leaving Acqueis, and arriving at Aniva, he ſuppoſed himſelf to be ſtill upon the ſelfſame iſland.

Another advantage that reſults to us from the voyage of the Dutch is, that it gives us the width of the iſland of Tchoka as far as Cape Patience, and beyond it; for the longitudes of the Dutch taken from the meridian of Cape Nabo are nearly exact.

Upon your chart, which I am going to ſend to the miniſter, I have laid down the ſtraits we have

diſcovered in the midſt of the mountains of the Dutch; and have traced our route in ſight of Staten Iſland, the ſtraits of Uries, and the Company's Land.

You will no doubt remark, in reading my narrative with the chart before you, that I could have followed the coaſt of Corea as far as the 42d degree, which would have been much more eaſy, and perhaps more brilliant than what I have done; but I thought it of much greater importance to determine the exact poſition of a point of Japan, which might give the width of the Tartarian ſea, and even that of the iſland taken from Cape Nabo. I am certain you will approve of my mode of proceeding. You will however regret, that circumſtances did not permit me to take a more extenſive ſurvey of the coaſt of Japan, and I regret it alſo; but do not forget, my dear friend, when you examine the operations of my voyage, do not forget the everlaſting fogs, which forbad us to do as much in a month as might be done in three days under a clear tropical ſky. Nor muſt you forget, that but for the fortunate ſtorm that gave us forty-eight hours of a north wind in the Tartarian channel, we ſhould not have arrived this year at Kamtſchatka.

I muſt ſay once more, that although we have not done every thing, I am convinced that little more could have been done, and that our voyage may be reckoned next to thoſe of the Engliſh; which was

not

not equally apparent to me at my return from the coaſt of America, becauſe we had been forced to run down it with too much rapidity; and beſides, ſeveral expeditions would not ſuffice to take a minute ſurvey only from Croſs Sound to Port San-Franciſco. Figure to yourſelf at every league inlets of a depth not to be meaſured, on account of their running inland to a diſtance which the eye cannot reach; currents ſimilar to thoſe of the *Four*, and of the *Raz* on the coaſt of Brittany; and almoſt continual fogs. After this you will conclude, that a whole ſeaſon would ſcarcely ſuffice to examine twenty leagues of ſuch a coaſt in every point; nor would I undertake to give, after ſix months hard work, an accurate and detailed account of the country comprized between Croſs Sound and Port Bucarelli, much leſs as far as Cape Hector, which would require ſeveral years. I have been forced then to content myſelf with the laying down of the principal capes; the obſerving and tracing of the true direction of the coaſt from one point to another; and the determining of the geographical poſition of the iſlands that lie out a good many leagues from the continent. The immenſe plan of our voyage did not permit me to extend my labours any farther. Captain Cook did perhaps ſtill leſs upon this coaſt: not that I wiſh to detract in the ſmalleſt degree from the merit of that celebrated navigator; but baffled by the wind, and confined like myſelf to a ſpace of time which oppoſed his

following up his diſcoveries, he navigated at a greater diſtance from the coaſt than that at which circumſtances allowed me to keep; and when he approached towards Cook's River and Prince William's Sound, it was with the hope, ill-founded I believe, but which he never abandoned, of finding an outlet to the north, and attaining his favourite object, a paſſage into either Baffin's Bay, or Davis's Inlet. His exploring of Prince William's Sound leaves much ſtill to be done; but, I ſay again, ſurveys of this kind require much more time than either he or I could devote to our reſearches.

I procured at Manilla the journal of the voyage that the Spaniſh pilot, the famous Don Franciſco-Antonio Maurelle, made in that quality to the north-weſt coaſt of America. Thus, by joining his journal to that of the firſt voyage made to thoſe parts by the Spaniards, which Mr. Barrington has publiſhed in his miſcellanies, and of which an extract is tranſlated in the notes you had the goodneſs to collect for my inſtruction, we ſhall have all the ſecrets of Maurelle. I left that navigator at Manilla, commanding one of the ſhips of the new company deſtined to make a coaſting voyage from Cavite to Canton. I ſend you a very minute plan of Port Bucarelli, and of the neighbouring iſlands, which I alſo obtained at Manilla.

The Spaniards in their ſecond voyage penetrated as far as Prince William's Sound; and thinking themſelves

ſelves upon the coaſt of Kamtſchatka, were afraid every inſtant of being attacked by the Ruſſians. I will not ſend you their general chart, becauſe it would really do more harm than good to the progreſs of geography. Was it their intention to deceive us? or rather, did they deceive themſelves? However this may be, they only ſaw the land near Port Bucarelli, and at the entrance of Prince William's Sound.

Together with charts of the ſecond part of my voyage I ſend ſome particular plans drawn by lieutenant Blondela of the Aſtrolabe. That officer works with a degree of aſſiduity, intelligence, order, and neatneſs, which deſerves the greateſt praiſe.

You will find among the plans nine deſigns made by M. Duché. They are as true repreſentations of nature as poſſible. M. Blondela alſo ſends with them a view of the harbour of St. Peter and St. Paul, which is not taken from the ſame point of ſight as that inſerted in *Cook's Third Voyage*, and alſo a collection of drawings of the different veſſels uſed at ſea by the various people we have viſited. This collection is highly intereſting, and deſerves the honour of being engraved.

I ſhall ſail from Avatſcha the firſt of October. We were received there with the greateſt marks of kindneſs; but the Okhotſk ſhip was probably loſt

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on her paſſage*, and the governor of Kamtſchatka, with the beſt inclination poſſible, was unable to furniſh us with a ſingle cheſt of flour. The want of that article will force me to put into Guam, to endeavour to get ſome there.

I will now give you the further plan of my voyage, ſubject however to be altered by circumſtances, and by events that I cannot foreſee.

You know, that I have already inverted a part of the firſt plan laid down in my inſtructions, becauſe I was authoriſed to do ſo. I thought that it would be more expeditious to begin by the northern hemiſphere, and to finiſh by the ſouthern, ſince I was to terminate my excurſions by putting into the Iſle of France, ſituate ſouth of the line. I confeſs to you, that I had ſome apprehenſion alſo of being anticipated by the Engliſh, who, before my departure, had announced the project of a new voyage of diſcovery. I was afraid for the coaſt of Tartary, &c. which was the only part truly new that I had to explore. I would not for all the world, that they ſhould have gotten the ſtart of me there.

On leaving Avatſcha, I ſhall direct my courſe ſo as to viſit the Kuriles, and determine their poſition as far as the Canal de la Bouſſole. I ſhall then run down the parallel of 37 degrees, in queſt of land ſaid to have been diſcovered in that latitude

* See *the Journal of de Leſſeps*. (*Fr. Ed.*)

by

by the Spaniards in 1610. I ſhall then ſtretch away to the iſlands north of the Mariannes, and even to the Archipelago of the Mariannes itſelf, as far as Guam, where I ſhall put in, in order to procure proviſion. I ſhall ſtay only five days at Guam, and thence ſhall ſhape my courſe for the Carolines, provided I have any hope of getting from thoſe iſlands to Cape Choiſeul of the Terre des Arſacides of Surville, and of paſſing through Bougainville's channel. I ſhall afterwards ſteer to the ſouthward, where I may expect to meet with weſterly winds, &c.

If, on the contrary, the information I may procure at Guam, and the remarks I may make during the run, ſhould induce me to believe, that by exploring the Carolines I ſhould get too far to leeward to be able to arrive at New Zealand by the firſt of February, 1788; in that caſe I ſhall abandon the Carolines, which are of little importance, and ſhall direct my courſe from Guam to New Zealand, keeping as much to the eaſtward as poſſible. I ſhall examine every thing that comes in my way; this track, which will be entirely new, making it probable, that I ſhall fall in with new iſlands, better worth notice, perhaps, than the Carolines. Either plan will permit me to arrive in Queen Charlotte's channel towards the firſt of February. Proceeding thence, I ſhall employ ſix months in viſiting the Friendly Iſlands, in order to

procure

procure refreſhments, the ſouth-weſt coaſt of New Caledonia, the iſland of Santa-Cruz of Mendana, the ſouth coaſt of the Terre des Arſacides, and that of Louiſiade, as far as New Guinea; and in this part I ſhall ſeek a different channel from that of the Endeavour. I ſhall employ the months of Auguſt, September, and a part of October, in viſiting the gulph of Carpentaria, and the weſt coaſt of New Holland, taking care ſo to combine my operations, that it may be eaſy for me to get to the northward, in order to reach the tropic, and arrive at the Iſle of France at the end of November.

I ſhall leave the Iſle of France about the 25th of December, 1788. I ſhall direct my courſe towards Cape Circumciſion, whence I ſhall return to France, either without putting into port at all, or elſe touching at the Cape of Good Hope, according as circumſtances may require; and in June, 1789, I hope to arrive at Breſt, forty-ſix or forty-ſeven months after my departure from that port.

Such is my new plan, in which, as you ſee, I cannot include the ſouth coaſt of New Holland, or Van Diemen's Land, whence I ſhould not be able to get to the Iſle of France, unleſs by making the complete circuit of the firſt-mentioned iſland. To make that run, which would be much longer than the other, does not ſeem practicable. The ſtate of our rigging, and even of our ſhips, forbids me to undertake it.

I have

I have not mentioned the Society Iſlands, becauſe they are ſo well known, as no longer to afford food for curioſity. It is perhaps meritorious in the commander of an expedition, and it is certainly advantageous to a crew, to make a voyage round the world without touching at Otaheite. You know, beſides, that the Society and Friendly Iſlands, with thoſe of Mendana and others, that are well known, did not enter into the plan of my inſtructions, unleſs in caſe of neceſſity. I was, indeed, left at liberty to put into iſlands where I might be able to procure refreſhments; but I either can, or will find means, to do without them. I will not, however, forget, that you recommended to me, as a matter of importance to the improvement of geography, to determine the true poſition of ſome of the points reconnoitred by Carteret, in order to have ſure *data* for the correction of the errors of reckoning in the route of that navigator, who was unprovided with time-keepers, and appears beſides to have made but few aſtronomical obſervations.

The ſame Antonio Maurelle, of whom I have already ſpoken, the Cook of the Spaniards, though in my opinion he is far inferior to the Engliſh Cook, made, at the beginning of the year 1781, a third voyage from Manilla to North America, in which he was deſirous of getting into a high ſouth latitude, that he might afterwards run to the eaſtward with the weſterly winds prevalent in the environs of New Zealand;

Zealand; but this plan he could not execute for want of proviſion, and was obliged to ſteer northward towards the Marianne Iſlands, whence he took the ordinary track of the galleons in order to return to San-Blas. I ſend you the journal of this third voyage, in which Maurelle thinks he has made a great many diſcoveries, becauſe he is ignorant of thoſe made by modern navigators. It was my firſt intention to keep his journal, that I might ſee whether he had in reality met with any new iſlands in the neighbourhood of the Friendly group, a tract in which, according to the natives of thoſe iſlands, a great many others exiſt, that have not yet been diſcovered by Europeans. But after having examined it, I perceived, that if I attempted to make any uſe of it, it could only ſerve to lead me into error. It is an almoſt ſhapeleſs chaos, an undigeſted narrative, in which the longitudes are calculated by a reckoning highly uncertain, and the latitudes are very ill obſerved.

I have procured an excellent chart of Manilla, and ſeveral other intereſting plans. You may eaſily conceive, that this has not been done without great difficulty, and without the ſacrifice of ſome money, for you know that the Spaniards are far from communicative. They want, however, more than they have to give. The other maritime nations have been eager to make Europe acquainted with what the Spaniards wiſhed to hide ſo myſteriouſly

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from our knowlege. What I have ſeen at Manilla has confirmed me in the opinion I entertained of their puſillanimous, and uſeleſs circumſpection. The governor poſſeſſes a chart compriſing the whole ſpace between Manilla and Kamtſchatka; but I diſcovered, at firſt ſight, that it was nothing elſe but the French chart of Bellin drawn upon a larger ſcale; and you well know the ſkill of our hydrographer, and the blunders that exiſt in a chart of which the inaccuracy exceeds that of all the others of the ſame author. The governor only indulged me with a momentary and diſtant ſight of it; ſo much was he afraid leſt my memory might be good enough to enable me to make a copy of it from recollection. His fears, I confeſs, ſtruck me as ſo puerile, that forgetting for a moment his gravity, I could not help telling him, that I ſhould ſhortly know more than he and all his charts could teach me.

If you will take the trouble of adding together my length of ſtay in each port, from the firſt of Auguſt, 1785, the day of my departure from Breſt, till the ſeventh of September, 1787, the day of my arrival at Kamtſchatka, you will ſee, that in that time I only paſſed five months and thirteen days at the different places I touched at, and that about twenty-one months were ſpent at ſea; and you will hear with pleaſure, that, notwithſtanding the fatigue and privations incident to ſo

long

long a navigation, not a ſingle man has died on board my ſhip; nor have I a ſingle perſon ſick. The Aſtrolabe has loſt an officer; but the diſeaſe of which he died was the fruit of his own imprudence, and was entirely unconnected with the hardſhips and dangers of the voyage. Bating this, the crew of that ſhip has been as healthy as my own. You may be aſſured, that the attention of captain Cook to his ſhip's company was neither greater, nor more conſtant, than that which M. de Langle and I pay to the preſervation of the valuable men who are the companions of our labours; and if the good fortune we have had till now ſhould laſt to the end of the campaign, we ſhall ſhow, as captain Cook has done, that with care, and a proper regimen, ſeamen may be preſerved from the ſcurvy, and other diſeaſes that ſeem inſeparable from long ſea voyages. But the concluſions drawn hence will not apply to ſhips of the line with crews of eight hundred, a thouſand, and twelve hundred men, who are often recruited by convaleſcents coming out of an hoſpital, and who cannot be fed, like a hundred men picked out for a particular expedition, upon Moiſſac flour of the firſt quality, and Cahors and Teneriffe wine at ſix hundred livres a ton; nor ſupplied with all the antiſcorbutics that pharmacy and natural philoſophy have found means to combine. Obſerve alſo, that the ſmallneſs of the ſpace on board of large ſhips in proportion to the number

of the crew, does not allow each man to have a very large hammock; and that the officers, however great their activity, are not numerous enough to attend to things that may appear trifling, such as the sailors changing their linen regularly, and in their presence, in order to preserve those brave fellows from that sloth, which is natural to mankind in regard to their personal cleanliness, but which they overcome when the question is the bearing of fatigue or the braving of danger. In addition to all these various and constant attentions, I have been careful to put in, without calculating the expence, at places where I was sure of procuring excellent provision for my crew; such as Conception in Chili, Monterey in California, Macao, Manilla, &c. It appeared to me, that one of the experiments, intended to be made in this campaign, was to ascertain, whether men perfectly well-fed, and taken care of, can support the fatigues of the longest navigations in all climates, in all latitudes, in the midst of fogs, and under a burning sun. Hitherto I can answer in the affirmative; but my voyage is still a long way from its close. May the constancy of our care and zeal be still crowned by the same success!

Avatſcha, September 25, 1787.

I encloſe to you, my dear friend, a memoir of M. Rollin, ſurgeon of the Bouſſole. On reading it you will, no doubt, be of opinion, that ought to make a part of the collection of memoirs and other works, that our ſcientific men are buſied about, each in his department. This M. Rollin is a man of the firſt merit, who during twenty-ſix months has not loſt a ſingle man, who has not now a ſingle perſon in his ſick liſt, and who is conſtantly employed in the examination of our aliments, in their preſervation, and in their improvement; in every thing, in ſhort, that belongs to preventive medicine, which I prefer very much to the curative

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A table of the latitudes and longitudes of the different points of our chart of the archipelago of Corea, Eaſt Tartary, &c. accompanies this. You will find the longitudes corrected for each meridian according to the mean of the longitudes obtained by diſtances when the moon was to the eaſt, and from the longitudes calculated when it was to the weſt of the ſun. This difference of circumſtances has always produced, both in the Bouſſole and Aſtrolabe, a difference of from twenty to twenty-ſix minutes in the reſult, which can only be attributed to an

error

error in the tables; and M. Dagelet thought that they required correction. You muſt, therefore, generally ſpeaking, conſider what we now ſend you relative to this part of the voyage, as a work that is not entirely finiſhed, and that is ſuſceptible of ſome ſmall correction.

We have found here the tomb of M. de Liſle de la Croyère, over which I have placed an inſcription on copper. Perhaps it is not known in France, that this learned man had deſcendants in Ruſſia, who enjoy the conſideration due to their anceſtor. His grandſon is a counſellor of the Siberian mines, an office from which he derives conſiderable emolument.

Avatſcha, September 28, 1787.

I write to you again, my dear friend, to announce to you the receipt of packets that came to me by the way of Okhotſk, when I was at the eve of putting to ſea *. I am treated with a degree of bounty and diſtinction, of which neither my zeal nor my ſervices will ever render me deſerving.

The orders I have juſt received will make no alteration in the plan I had laid down for the reſt.

* His commiſſion of *Chef d'Eſcadre* was encloſed in thoſe packets, which the Ruſſian government undertook to convey to Kamtſchatka. (*Fr. Edit.*)

of my voyage; except that I ſhall touch at Botany Bay, on the eaſt coaſt of New Holland. I ſhould have miſſed this deſirable object, if I had begun by the ſouthern hemiſphere; but the great advantage I derive from the mode of proceeding I have adopted is the certainty of not having been anticipated on the coaſt of Tartary, &c. by any Engliſh veſſel. I know, that all thoſe that have been diſpatched from India have paſſed to the eaſtward of Japan. The moſt conſiderable was loſt upon Copper Iſland, near Behring's Iſland, and only two of the crew were ſaved, with whom I converſed, and who are to be ſent over-land to Peterſburg.

The ſhip which is building at Okhotſk, and which is deſtined by Ruſſia to make diſcoveries in theſe ſeas, is hardly upon the ſtocks; and it is poſſible, that it may not be ready to put to ſea for theſe three or four years to come.

Adieu! I ſhall ſet off to-morrow in good health, as well as all my ſhip's company. We would make a voyage round the world ſix times over, if it could be uſeful, or only agreeable to our country.

M. DAGELET.

Botany Bay, February 5, 1788.

I have begged M. de la Pérouſe to inſert in the packets addreſſed to the miniſter a table, which contains

tains the longitudes and latitudes obſerved on board, from our leaving Kamtſchatka to the day of our coming to an anchor in Botany Bay. The commodore directs me to give you ſome information concerning this part of our labours (a thing very little neceſſary), and I obey him with the greater pleaſure, becauſe it is rather an opportunity of recommending myſelf to your friendly recollection, than an uſeful aſtronomical diſſertation.

I have divided the table into four columns. The firſt contains the daily longitude of the time-keeper No. 19, calculated according to its rate of going determined at the bay of Avatſcha. The ſecond column contains the corrections that ſhould be made in the longitudes given by No. 19, in order to obtain exact longitudes, ſuch as we have determined them at different times by a great number of ſets of lunar obſervations. I have done my endeavour to make them as accurate as poſſible from the days preceding our making the iſlands of Navigators to Botany Bay; and, I believe, that there is very little uncertainty in all that regards the truly geographical points of the lands we have ſeen. The third column contains the true longitudes, and the fourth the latitudes carefully obſerved.

M. DE LA PE'ROUSE.

Botany Bay, February 7, 1788.

I ſhall never then, my dear friend, have any thing but misfortunes to announce to you; the utmoſt prudence being conſtantly diſconcerted by events which it is impoſſible to foreſee; but of which I have always had a ſort of ſecret pre-ſentiment. I confeſs, that I have to reproach myſelf, as to that unfortunate day the 11th of December laſt, with having yielded, almoſt in ſpite of myſelf, to the importunities, I may even ſay to the extraordinary obſtinacy, of M. de Langle, who inſiſted upon it, that freſh water, water newly put on board, was the beſt antiſcorbutic, and that his whole crew would be attacked by the ſcurvy before we could arrive in New Holland, if he did not lay in a ſtock of that article. I have arrived there, however, without ſick, although my crew has conſtantly drunk water which has been long ſhipped; and I am perfectly convinced, that good water, new or old, is equally ſalubrious *. You will find in my journal the par-

* It is generally underſtood, that in long voyages, officers of ſhips often prefer for their own drinking the water ſhipped at the port where they fitted out, to all they take on board at thoſe they touch at, and that they drink of the former till the end of the expedition.

ticulars

ticulars of our misfortune at the iſlands of Navigators. My ſenſibility is ſo profoundly affected by it, that it would be a torment to me to relate it over again. It will certainly appear inconceivable to you, that a man of the greateſt ſenſe, of the ſoundeſt judgment, of extenſive information, and poſſeſſed of knowledge of every kind, ſhould prefer to a vaſt and well-known bay, where the water was excellent, an unſafe place, where his long-boats remained aground at low water. Two thouſand Indians, who ſurrounded them, tore them to pieces, after having maſſacred all the men who had not time to take refuge in our barges, which continued afloat at the edge of the reefs; while the ſhips were quietly making exchanges with the natives of the iſland, at two leagues diſtance in the offing, where moſt aſſuredly we were far from foreſeeing the poſſibility of ſuch an accident.

About thirty Indians were killed on ſhore on that fatal day, by the people in our long-boats, when they ſaw themſelves aſſailed; and had I not reſtrained the juſt fury of our crews, I could have let them maſſacre five hundred more, either diſperſed on board the two ſhips, or in the canoes that ſurrounded them. Theſe canoes, which were bartering their proviſion along-ſide in perfect ſecurity, would have been ſunk; but I thought that ſuch a piece of barbarity would neither repair our misfortune, nor conſole us for our loſs. We ſhould only

allow miſchief to be done, when it is abſolutely neceſſary.

I could find nothing but a bad bottom of coral near that part of the coaſt where *Maſſacre* village is ſituate. The ſwell beſides ſet right in ſhore. I am certain that our cables would not have held two hours, ſo that the two frigates might have been expoſed to the greateſt danger, without its being poſſible for them to approach within gun-ſhot of that infernal little bay; and I did not think, that the burning of five or ſix huts was a ſufficient reaſon for expoſing them to ſuch imminent riſk. I believe, however, that I ſhould not have declined the adventure, if I had had any hope of recovering our long-boats; but the ſavages, after having almoſt deſtroyed them, drew up their remains upon the beach.

You will certainly approve my not having ſuffered this misfortune to change the plan of the remainder of my voyage; but it has prevented me from entirely exploring the Archipelago of Navigators, which I believe to be more conſiderable, better peopled, and abounding more in proviſion, than the Society Archipelago, including Otaheite, and ten times greater than all the Friendly Iſlands put together. We got ſight of the Archipelago of Vavao, which is adjacent to the latter, and which the Spaniſh pilot Maurelle had perceived; but his account of the longitude is ſo erroneous, that it would be a ſource of

new

new confuſion, if the iſlands in queſtion were laid down according to it in the charts. Navigators will be preſerved from all uncertainty on this head by our determinations, or rather by thoſe of captain Cooke, who has ſo well deſcribed the group of Hapaee, that it was impoſſible to doubt its identity with Maurelle's iſlands of Galvez.

You will find by my journal, that I got ſight of Pylſtaart and Norfolk Iſlands, and that I am arrived at Botany Bay, without a ſingle perſon ſick on board either of the ſhips. Some ſlight ſymptoms of ſcurvy, that had manifeſted themſelves, yielded to the freſh proviſion we procured at the Iſlands of Navigators. I am well convinced, that the ſea air is not the principal cauſe of this diſeaſe; and that it may with greater propriety be attributed to the foul air between decks, when a ſhip is not ſufficiently ventilated, and ſtill more to the bad quality of the proviſion. Is it to be ſuppoſed, that biſcuit worm-eaten, as it ſometimes is till it reſembles a honey-comb, meat, of which the whole ſubſtance has been corroded by an acid ſalt, and dry and decayed vegetables, can repair the daily waſte of the human body? From the want of ſubſtantial food neceſſarily follows the decompoſition of the blood, humours, &c. Accordingly, I conſider ſpirit of ſcurvy-graſs, and all the remedies in the ſurgeon's bottles, as mere momentary palliatives. Freſh proviſion, and freſh proviſion alone, either of the animal or vegetable kingdom,

kingdom, cures the ſcurvy ſo radically, that our crews, after feeding for a month upon the hogs we got by barter at the Iſlands of Navigators, arrived at Botany Bay in better health than at their departure from Breſt, although they had only paſſed four and twenty hours on ſhore at Maouna. It is my opinion, that malt, ſpruce-beer, wine, coffee, ſour-krout, &c. are only antiſcorbutics, becauſe theſe ſeveral liquid or ſolid ſubſtances ſuffer little by keeping, and conſtitute a proper nouriſhment for man. They do not, however, ſuffice for the cure of the ſcurvy; but I believe, that they delay its attacks; and in that point of view the uſe of them cannot be too ſtrongly recommended. I conſider as ſubtilties in medicine all the fixed airs, &c. of the Engliſh and French doctors. They might be ſwallowed by whole bottles full without doing ſeamen a thouſandth part of the good they receive from good ſlices of roaſt-beef, beef-ſteaks, turtle, fiſh, fruit, herbs &c.

My theory concerning the ſcurvy may then be reduced to the following aphoriſms, which are not to be found among thoſe of Hippocrates:

Food of any kind proper for man, and capable of repairing the daily waſte;

Freſh air introduced as often as poſſible between decks, and in the hold;

The humidity occaſioned by fogs inceſſantly counteracted by fumigation, and even by pans of burning coals;

Cleanlineſs, and a frequent examination of the ſailors clothing;

Regular exerciſe, and ſufficient ſleep; without, however, giving any indulgence to ſloth.

I confeſs, that I have no faith in captain Cook's obſervations concerning the ſpoiling of water in caſks. I think, that water of a good quality, when taken on board, after having undergone two or three decompoſitions known to all ſeamen, which occaſion it to ſtink for a few days, becomes excellent again, and as light perhaps as diſtilled water, becauſe all the heterogeneous matters are precipitated, and form a ſediment at the bottom of the caſk. At the moment I am writing to you, although we are very near a pretty good watering place, I am drinking the water of *Port des Français*, on the coaſt of America, and find it excellent. This erroneous opinion, to which I never ſubſcribed, was, notwithſtanding, the cauſe of our misfortune at the iſland of Maouna. But how is it poſſible to contend with a commander of great experience, who aſſures you, that all his crew will be attacked with the ſcurvy in leſs than a fortnight, unleſs he take freſh water on board?

As M. Dagelet has written you an account of his obſervations, I ſhall be ſilent on the ſubject. It will ſuffice to ſay, that the combination of our two means, aſtronomical obſervations and time-keepers, has completely reſolved the problem. We have conſtantly

conſtantly navigated with leſs error of longitude, than was common in latitude ten years ago, when it was cuſtomary to obſerve with wooden octants, and perhaps with four times leſs than when the croſs-ſtaff and old-faſhioned quadrant were in uſe.

The death of M. de Langle will make no change on board the Aſtrolabe as to aſtronomical obſervations. For near a year they have been ſolely made by M. de Lauriſton. He is a young officer of the greateſt merit, and in point of accuracy may diſpute the prize with our aſtronomers. I know, beſides, that his journal of obſervations is kept in the beſt order poſſible.

As the Engliſh have fixed their eſtabliſhment at Port Jackſon, they have entirely abandoned Botany Bay. I have a kind of entrenchment on ſhore with palliſadoes, in order to conſtruct our long-boats in ſafety: they will be finiſhed at the end of the month. This precaution was neceſſary againſt the Indians of New Holland, who, although very weak, and in no great numbers, are, like all ſavages, very miſchievous, and would burn our boats if they had the means, and could find a favourable opportunity. They threw ſpears at us after having received our preſents and our careſſes. My opinion concerning barbarous nations was long ſince fixed; and my voyage has only ſerved to confirm it.

J'ai trop, à mes périls, appris à les connaître.

I am,

I am, however, a thouſand times more angry with the philoſophers who extol the ſavages, than with the ſavages themſelves. The unfortunate Lamanon, whom they maſſacred, told me, the very evening before his death, that the Indians were worthier people than ourſelves. Obſerving rigidly the orders conveyed by my inſtructions, I have always treated them with the greateſt mildneſs; but I confeſs to you, that if I were to undertake another voyage of the ſame kind, I would demand different orders. A navigator, on quitting Europe, ought to conſider the ſavages as enemies, very weak indeed, and whom it would be ungenerous to attack, and barbarous to deſtroy; but whoſe aſſaults he has a right to prevent, when authorized to do ſo by well-grounded ſuſpicions.

In my letters from Kamtſchatka I have communicated to you the plan for the remainder of the expedition, upon which I was obliged to fix, in order to arrive in France in June 1789. Neither our proviſion, nor our rigging, nor even our ſhips, would permit me to prolong the period of my voyage, which, I ſhould imagine, will be the moſt conſiderable ever made by any navigator, at leaſt as to length of route. I have ſtill a great many intereſting things to do, and very miſchievous people * to viſit. I do not anſwer for not firing a few

* Thoſe of the iſlands ſituate to the ſouth-eaſt of New Guinea, diſcovered by the French in 1768 and 1769.

cannon,

cannon-ſhot at them; for I am convinced, that fear alone can prevent the effect of their bad intentions.

I ſhall ſail from Botany Bay on the 15th of March, and ſhall take care to loſe no time till the month of December, when I expect to arrive at the Iſle of France.

You will find in the ſequel of my journal a plan of ſeven of the iſlands of Navigators. The iſlanders enumerated ten; and to complete the archipelago, I think it would be neceſſary to include Quiros's Iſland of the Handſome Nation, with thoſe of Cocoas and Traitors; but of this I am not poſitively ſure. The laſt two are very ſmall, and of little importance; but I ſhould not be ſurpriſed, if the iſlands of Maouna, Oyolava, and Pola, contained together four hundred thouſand inhabitants. Maouna is much ſmaller than the two others; and yet in the ſpace of four and twenty hours we procured there five hundred hogs, and an immenſe quantity of fruit.

I ſhould have been glad to add to the plan of the Iſlands of Navigators that of the Friendly Archipelago, increaſed by the addition of Vavao, Latté, &c.; but to my great regret it is not finiſhed, or will it be before my departure. The want of the plan will be in ſome meaſure compenſated by the latitudes and longitudes of thoſe iſlands, which you will find in the tables. They are more exact than thoſe I have given in the text of my journal. Although

though hiſtorical, it was written as the events took place, and the longitudes were inſerted before they had been ſubmitted to a final examination, in conſequence of which they frequently underwent correction.

M. de Clonard now commands the Aſtrolabe; and M. de Monti has taken his place on board the Bouſſole. They are both officers of the greateſt talents. In M. de Langle we have loſt one of ſuperior merit. He was endowed with the moſt excellent qualities, and I never could diſcover any fault in him but that of being obſtinate, and ſo inflexible in his opinion, that there was no refuſing to follow it without quarrelling with him: he rather tore from me, than obtained, the permiſſion that was the cauſe of his death. I ſhould never have yielded, if the report he made of the bay where he periſhed had been exact; or an I conceive how it was poſſible for ſo prudent and ſo enlightened a man to be ſo groſsly deceived.

You ſee, my dear friend, that I am ſtill much affected by that event. In ſpite of myſelf, I return to it inceſſantly.

EXTRACTS

Of Letters written by M. de la Pérouſe to M. de la Touche, Aſſiſtant-Director of the Ports, and Captain in the French Navy; and by M. de Lamanon to M. de Servières.

M. DE LA PE'ROUSE.

Macao, January 6, 1787.

HERE I am, my dear la Touche, being at laſt ſafe arrived in China, eighteen months after my departure from France, of which fifteen have been paſſed under ſail. We have not loſt a ſingle perſon by diſeaſe; or have we a ſingle man ſick on board either of the ſhips; but by this time you are, no doubt, acquainted with the misfortune we met with on the coaſt of America. For the particulars of my voyage I refer you to the complete narrative, which I am now forwarding to the miniſter.....

Although we have already made almoſt the circuit of the globe, we are ſtill but at the beginning of the expedition. As ſoon as the fair weather ſets in, I ſhall ſail, in order to run down the Chineſe and Tartarian coaſts as far as Kamtſchatka. This is certainly the moſt difficult navigation that can poſſibly be undertaken. During the three or four days

days that I have been at Macao, I have gained ſome little information, and am told that the different channels between China and Japan, and the coaſt of Tartary and the Kuriles, are full of ſhoals, that the currents are very ſtrong, and the fogs almoſt everlaſting. You ſee, then, that our taſk is not an eaſy one; but we will execute it, or periſh.

I have been anxious to ſend a complete account of our voyage till our arrival at Macao, as well as our charts, that in caſe of our meeting with any misfortune, the beginning of our labours, which I think intereſting, may not be loſt. I intend to ſail hence for Manilla at the end of the month, and from Manilla for Kamtſchatka on the 10th of April. Adieu! my beſt wiſhes attend you.

Kamtſchatka, September 22, 1787.

I have already, my dear friend, made almoſt the circuit of the globe, without hearing from you. I do not accuſe you, becauſe nobody has written to me; but I complain becauſe my diſappointment renders me very unhappy, and becauſe every one has a right to expreſs what he feels. I give you no particulars of my voyage, as you have it in your power to ſee every thing; and as you are a ſeaman, nobody can better judge than yourſelf, how much the navigation we have juſt performed was

every way difficult and dangerous, by reaſon of currents, fogs, and ſtorms, and of nations among whom no ſtrangers can land, or find aſſiſtance in caſe of need. No European before us ever paſſed to the weſtward of Japan. It was known to be an iſland; but nobody ever knew whether the channel that ſeparates it from Corea were navigable for large veſſels. The account of Kæmpfer was calculated to inſpire fear as to the navigation of theſe ſeas, of which he only ſpoke after the report of the Japaneſe; while Father des Anges's ſtraits of Teſſoy were not likely to inſpire much courage, ſince, according to him, they are full of weeds, which hinder ſhips from paſſing. We have ſwept away all this geographical traſh, found ſtraits moſt aſſuredly new, and are at length arrived at Kamtſchatka, whence I ſhall ſail for the ſouthern hemiſphere on the 1ſt of October, 1787, not expecting to arrive in France till the month of June, 1789.

I have read, my dear friend, the new code of maritime regulations. I proteſt that I think it perfect; and I could wiſh that, like the ark of the Lord, it were expreſsly forbidden by law to make the leaſt alteration in it, till two centuries after the firſt year, when a few miniſterial letters might be neceſſary by way of interpretation. I find in it *gardes de la marine* ſo brought up as to be ſeamen; officers who have

have nothing to think of but their profeſſion; and directors who have only to attend to their particular occupations; troops ſo conſtituted as to ſerve uſefully on board of ſhip, where there will always be infantry enough, when we have no war in Germany; and laſtly, a centre of unity in the commander, which inſures the execution of the plan, the only one good, true, and rational. What I have ſo long deſired has at length taken place. We have at length a commanding marine *, and an auxiliary marine, of which laſt the intereſt has been ſo conſulted as to ſpare it all humiliation, with a mode of educating young people, which may, perhaps, render them a little rude in their manners; but it will never make them proud, and will certainly add to their energy of mind. I wiſh I had been brought up like the new naval ſtudents, whoſe name it was right to change; for nothing in the old ſchools was worth preſerving. . . . . .

* By the French naval code, here alluded to, officers of merchant ſhips were permitted to enter into the navy, but never could riſe to any command. Hence they were called *la marine auxiliare*, while the ſuperior claſs, conſiſting of nobles, was denominated *la marine commandante*. T.

M. DE LAMANON.

The Chineſe Seas, January 1, 1787.

Though you have ſo many correſpondents, my dear Servières, you have not any in China. You are, however, advatageouſly known, and have friends, there. Can you doubt it when I tell you that it is from Macao that I am writing? A thouſand times have I regretted that you were not one of our party—a thouſand times have I rejoiced at it. The enjoyments I have had, ſince our departure, have been great. I work more than twelve hours a day, and yet I am never before-hand with my work: fiſh to anatomize; quadrupeds to deſcribe; inſects to catch; ſhells to claſs; events to relate; mountains to meaſure; ſtones to collect; languages to ſtudy; experiments to make; a journal to write; and nature to contemplate—I would that for all this I could multiply my exiſtence twenty times over. With your activity and good health, you would have partaken of our labours, and of our enjoyments; but after all our pleaſures, figure to yourſelf what muſt be the ſituation of a geologiſt obliged to paſs three years out of four at ſea. Between the tropics the ſtomach loſes its powers, and exceſſive perſpiration fatigues; in cold climates fogs oppreſs us; to this add the ſor-

row we felt at the loſs of our friends, the dangers we ran, which have been great, and you will confeſs that ſcience, as well as religion, has its martyrology. Health and hope, however, never forſook me, and I am now taking a moment's breath, after being a little fatigued with having gone ten thouſand leagues. I have not yet had leiſure to feel a moment's *ennui*. Monges and myſelf have each our province: his conſiſts of birds, a portion of inſects, the analyſis of ſtones and waters, and ſome objects of natural philoſophy; mine includes geology, quadrupeds, fiſhes, ſhells, other aquatic animals, the compilation of the meteorological obſervations, the natural hiſtory of the ſea, &c. M. de la Martinière, who is on board the Aſtrolabe, has the plants, and alſo amuſes himſelf with inſects, birds, and fiſhes. To arrange all theſe materials, and to apply them properly, require meditation and labour.

Preſerve your health, your amiable cheerfulneſs, and rely for ever upon your friend.

P. S. I expect from you, at the Iſle of France, or at the Cape of Good Hope, a long letter, which will inform me of the moſt important literary and political intelligence.

LETTER

From M. de la Martinière to the Miniſter of Marine *.

Road of Santa Cruz, at Teneriffe, Auguſt 29, 1785.

SIR,

IF, according to the example of moſt botaniſts, who have viſited foreign countries to obtain a knowledge of their productions, I ſhould confine myſelf to the collection of a multitude of plants, and the arrangement of them in an herbal, I ſhould but imperfectly fulfil the commiſſion with which I have been entruſted. In my opinion, the botaniſt on his arrival in a foreign country ought to examine all its vegetable productions, form an exact catalogue of them, gain a knowledge of the ſoil, its expoſure and temperature, and, in ſhort, to judge, from the analogy between the vegetation of different countries, what are the productions which may be advantageouſly

* I received this piece and the following when the work was finiſhed; I was therefore unable to arrange them according to their dates; they appear to me, however, of too much importance to be omitted.—*(Fr. Ed.)*

cultivated

cultivated in France, and thereby conduce to the national utility.

Theſe were the principles that directed my obſervations during our ſtay at Madeira and Teneriffe, and our tour to the Peak. I there met with many plants which would certainly thrive if they were cultivated in the province of Languedoc. I conclude ſo from obſerving ſeveral plants which are indigenous to that province, growing here among others of which France is entirely deſtitute, and which, nevertheleſs, might be of conſiderable ſervice.

If, as I hope, we ſhall be able to accuſtom them to our climate, I ſhall think that I have rendered an important ſervice to this province. You know, ſir, that it is abſolutely deprived of wood; it is, therefore, to remedy this inconvenience, that I propoſe the cultivation of the following plants; the ſeeds of which I have the honour of tranſmitting to you.

The number of theſe is confined to ſeven or eight, of which ſeveral are of the genus geniſta. One of theſe in particular I ſhould wiſh to have a full trial, ſince, beſide furniſhing a great deal of wood, it alſo affords an excellent food for goats. The natives of Teneriffe offer us an example of this. They ſuffer herds of goats to wander during the whole year, in the diſtrict where this plant

grows abundantly: it forms their ſole food, and they ſeem to thrive very well upon it. This ſhrub, commonly called broom, is named by Maſſon, in the ſupplement to Linnæus, *ſpartium ſupranulium*; it comes to perfection on the mountains, on the ſide of the port of Orotava, in the road to the Peak. This ſpecies is certainly the largeſt of any hitherto diſcovered; I have met with ſeveral, the whole circumference of the branches of which exceeded eighty feet. The trunk was nearly the thickneſs of a man's body, and the branches in proportion. It grows to the height of ten or twelve feet, and when in bloſſom makes a very beautiful appearance, the branches being very numerous and thick ſet with flowers.

The other plants which appeared to me capable of being cultivated with advantage in the ſouth of France, are:

1. A ſpecies of aſparagus, a beautiful ſhrub very common in this country. It is called by Linnæus *aſparagus declinatus*.
2. A ſpecies of ciſtus. *Ciſtus villoſus, Linn.*
3. An euphorbium of the Canaries. *Euphorbia Canarienſis, Linn.* which grows upon the bare rocks, and is uſed as fire wood. The vegetative force of this plant is ſo conſiderable, that a ſingle trunk throws out more than a hundred and fifty branches of the thickneſs of the arm, and twelve feet high. A ſingle plant would furniſh

furniſh a man with fire-wood for the whole winter. The proper ſoil, in my opinion, for theſe plants would be the neighbourhood of Montferrier, a ſmall village about a league from Montpellier, round which is a tract of uncultivated land, commonly known by the name of *Garrigues*. I am induced to think, that theſe different plants would flouriſh there very well, ſince that country, like the iſle of Teneriffe, is volcanic.

The moſt proper perſon, in my opinion, to make theſe experiments, and who will, with pleaſure, undertake the care of them, is M. Gouan, profeſſor of medicine at Montpellier, and an excellent botaniſt, under whom I took the degree of M. D., and for whom I ſhall always entertain a high reſpect. If you will tranſmit to him part of the ſeeds, which I have the honour to ſend, I ſhall conſider myſelf under great obligations.

I have alſo directed to you two ſmall cords, which were made of the bark of the banana tree, as well as ſeveral parcels of the wood of the ſame tree, which I wiſh to be examined as ſoon as poſſible.

If hitherto the attempts have been unſucceſsful to fabricate cloth and cord from this bark, it is probably owing to want of ſkill in the preparation of it: the following, therefore, I recommend as a better method.

method. The bark of this plant ought not to be ſteeped like hemp, becauſe it is very ſucculent, and the pulp is apt to bring on a putrefaction of the ligneous part, which it is eſſential to preſerve; whereas, if the outer covering were taken off in ſlips, and afterwards preſſed, in order to get rid of the moiſture and pulp contained in every layer, the ligneous part might be readily procured without injury. It might then be ſteeped for ſome time in water, in order to undergo a ſlight degree of putrefaction, which would render it more ſoft and pliable, and capable of being applied to all the uſes of hemp. It would alſo poſſeſs the peculiar advantage, on account of its concentric layers, which are ten or twelve in number, of ſupplying thread of different degrees of fineneſs.

You may yourſelf judge, ſir, of the ſtrength of theſe cords; they were made on board the ſhip, and I ſhewed them to M. de Langle, who is perſuaded that they may be turned to great advantage. He informs me, that the principal experiment to be made, would be to lay one of them for a conſiderable time in water, and then try whether it remain of the ſame ſtrength as before. This experiment I purpoſe to make*.

* For the reaſons before mentioned, the voyage of Pérouſe was not capable of furniſhing a great number of new vegetables; among thoſe, however, which were ſent home by the gardener

gardener Collignon, ought to be mentioned a beautiful herbaceous plant, which flowered and matured its seeds in the botanical garden in 1789. Jussieu, who first observed it, has made a new genus of it belonging to the family of *nyctages*, to which he has given the name of *abronia*. See Gen. Plant. p. 448. Lamarck has given a good figure of it in his *Illustrationes Generum*, plate 150. The native country of this plant is California.—*(Fr. Ed.)*

EXTRACT

Of a Letter from M. de Lamanon to M. Condorcet, Perpetual Secretary to the Academy of Sciences.

AFTER a paſſage of two months we arrived at St. Catherine's iſland, where we made no longer a ſtay than was neceſſary to take in wood and water. From Teneriffe we ſaw no other land than the iſles of Martin Vas, which are uninhabited, and Trinidad, which is occupied by a Portugueſe eſtabliſhment, that ſucceeded one formed there by the Engliſh. The garriſon conſiſts of about two hundred men, and no women. They are ſupplied with proviſion every ſix months; for this iſland, which is a mere rock of baſaltes, is not capable of being cultivated. I came within hail of it, but it is ſurrounded with reefs of rock, and we had orders from our captain not to attempt a landing. When you ſhall receive this letter, that which I wrote to you from Teneriffe will probably have alſo arrived. Being under the neceſſity of writing before we came to anchor at St. Catherine, leſt I ſhould have no time afterwards, I could not ſend you much news;

our

our ſhips ſailed but heavily, a circumſtance which will prolong our voyage; which, I am informed, will be, on the whole, near three years and a half. We ſhall have kept the ſea longer than any of our preceding navigators, for we continue but a very ſhort time at the places where we touch. We are, it is true, preſſed for time, in order to double cape Horn during the favourable ſeaſon. This long continuance at ſea is not very favourable for mineralogical obſervations; but I conſider the object of my voyage as by no means confined to this branch of ſcience. I am in good health, and work twelve hours in the day without fatigue, notwithſtanding the rolling of the ſhip. Inſtead of lying in bed till nine or ten o'clock, as I uſed to indulge in, I every morning ſee the ſun riſe.

I encloſe a memoir on the reſults of the barometrical obſervations taken hourly from 1° north, to 1° ſouth of the line. It appears, that the combined actions of the ſun and moon produce a flux and reflux of the atmoſphere, cauſing the variation of a line in the barometer. It ought to be only one third of a line, according to the calculations of M. de la Place: it is true, that I have elſewhere read, that, according to the calculations of the ſame philoſopher, the barometer at the equator, by the action of the moon, ought to vary half a line, ſo that there ſeems to be a doubt on the ſubject. There ought,

ought, indeed, to be ſome degree of uncertainty in the grounds of this calculation, if we be to judge of the opinions of the greateſt mathematicians, concerning the flux and reflux. Some ſay, that, if the ſea were of quickſilver, the flux and reflux would be the ſame; according to others, however, there would be a difference. It belongs to your firſt-rate mathematicians to examine this matter afreſh, and determine our belief.

I made the magnetical obſervations with much care: it is not, however, worth while to ſend you the particulars of them. I obſerved for twenty-four hours ſucceſſively the dip of the needle, in order to aſcertain the moment when we paſſed the magnetic equator, and I found the true zero of inclination on the 8th of October, at eight in the morning, in about 10° 46′ ſouth latitude *. I made obſervations on ſteel bars laid looſe on the veſſel, on others which were fixed, on the oſcillations of the horizontal and perpendicular needle, on the weight which a magnet is capable of ſupporting according to the latitude; in a word, I hope that I have collected more facts on this ſubject, than have for a long time ſince been procured. The general reſults only are intended to be printed in the account of the voyage.

* See tables of the courſe of the Bouſſole, October 8, 1785.—*(Fr. Ed.)*

We

We have had no inſtance of ſickneſs on board our veſſel, except M. Blondela. We are very well ſatisfied with each other, and eſpecially with M. de la Pérouſe. I have particular reaſon to ſpeak well of him from his readineſs in ſupplying me with any thing that I may want. The department of M. Monges comprehends ornithology, microſcopic animals, and cryptogamous plants. Mine includes ichthyology, entomology, and conchology. With regard to mineralogy, we have not yet determined our reſpective limits: however, from the turn of our ſtudies, the geological obſervations will fall to my ſhare, and the details of mines and chemical analyſis to the abbé Monges. I am alſo charged with the meteorology and magnetic obſervations. While I lived at Salon I ſtaid at home one year, in order to lay up money for the expences of a journey for the next; ſo that I devoted one year to reflection, and the other to local obſervations. At preſent I compare my obſervations while we are at ſea, and make new ones at every place where we touch. My mode of life has, therefore, ſcarcely undergone any change.

When you ſhall have an opportunity of ſeeing M. le Roy, tell him, that on October 25, we had a very remarkable ſtorm. The ſky was all in flames; I employed part of the night in obſerving it,

it, and had the pleaſure of ſeeing three aſcending thunderbolts. They roſe from the ſea like an arrow; two of them in a perpendicular direction, and the third at an angle of about 75°. The lightning was leſs forked than in France. Towards the concluſion of the ſtorm I ſaw a luminous point on the end of the conductor; it continued a quarter of an hour, and is called St. Elmo's fire. It did not make its appearance on the other maſts. I am always recommending the conductor; it is to be taken down at St. Catherine's, where we ſhall be to-morrow; I ſhall, however, be able, perhaps, to obtain a reſpite for ſome time longer. M. de la Pérouſe appears almoſt convinced of its utility. I know not who has told him, that the Engliſh have left it off after having found it very inconvenient. Forſter, however, mentions an inſtance in which it was of great uſe to captain Cook's ſhip. I believe, that we ſhall compromiſe the buſineſs, by taking it down during heavy gales, for fear of breaking it, and replacing it at the approach of a thunder-ſtorm.

I have directed to M. Fleurieu the memoir which I have mentioned in this letter, becauſe I know not whether the miniſter would chooſe it to be publiſhed before our return.

P. S. We have been very well received at St. Catherine, where we found abundance of every thing.

thing. I have made a large collection of inſects, quadrupeds, fiſh, ſtones, &c.

The inhabitants are good-natured, and the governor ſhewed us much civility.

On board the Bouſſole, off St. Catherine,
Nov. 5, 1785.

OBSERVATIONS

Made during the run from the first degree of north latitude to the first degree of south latitude, in order to discover the flux and the reflux of the atmosphere;

BY M. DE LAMANON.

It has been already observed, that within the tropics the mercury of the barometer continued constantly higher in the syzygies than in the quadratures of the moon; but it was not suspected, that, by means of this instrument, the flux and reflux of the sea could be not only observed, but even measured with considerable exactness. It was reserved for the academy of sciences, to demonstrate their possibility. The following are the words of its instructions, which M. de la Pérouse put into our hands at the beginning of our voyage.

" The Academy also requests the navigators to " keep an exact account of the barometer, at dif- " ferent hours of the day, in the neighbourhood of " the equator, with the view of discovering, if " possible,

" poſſible, how much of the variation of that inſtru-
" ment is due to the action of the ſun and the
" moon; that quantity being then at its maximum,
" while the variations produced by ordinary cauſes
" are at their minimum. It is needleſs to add,
" that theſe delicate obſervations ought to be
" made on ſhore, and with the greateſt poſſible
" precaution."

Having been preſent at the reading of this article, in an extraordinary ſitting of the academy, I had procured an excellent barometer, made by the ſieur Fortin, ſo as to ſhew a variation of $\frac{1}{10}$ of a line. This intelligent artiſt was pointed out to me by M. Lavoiſier. It was thought that I ſhould make uſe of this inſtrument conſtructed for this expreſs purpoſe, on which account the academy deſired in its inſtructions, that the obſervations ſhould be made on ſhore; but having met at Breſt with a marine barometer, made by Nairne, and deſcribed in the voyage of the celebrated Cook, I found that it was fully calculated to make exact obſervations even at ſea. Notwithſtanding the rolling of the veſſel, the mercury has hitherto remained immoveable, owing to the excellent ſuſpenſion of the barometer, and to the capillary tube which is adapted to the common tube. By means of the nonius, which is added to it, variations as ſmall as $\frac{1}{10}$ of a line are readily perceived. From daily obſervations of this

barometer at ſun-riſe, noon, and ſunſet, I remarked, that from the 11° 2′ of north latitude, to 1° 17′, it experienced a very regular motion. It was always at its maximum of elevation about noon, then deſcended till the evening, and roſe during the night. It was on September 27th, that we reached the latitude of 1° 17′.

On the 28th, before day-break, I began the ſeries of obſervations, for which I had made preparations the evening before, and I repeated them every hour till October 1ſt, at ſix o'clock in the morning, that is, more than three days and three nights. M. Mongès ſupplied my place during the ſix hours that I devoted to reſt. I thought it at the ſame time neceſſary to obſerve the thermometer in the open air, and that attached to the barometer, as well as the hair hygrometer. I alſo noted down at the ſame time the directions of the wind, the courſe of the veſſel, and the rate of our ſailing, eſtimated by the log. I alſo took the ſame opportunity of obſerving the temperature of the ſea, and the dip of the needle.

The reſults of theſe obſervations appear to me very curious. The barometer gradually aſcended for ſix hours, and then deſcended during the next ſix; roſe again during the ſix following, and ſo on, as may be ſeen from the following table, extracted from my journal.

Sept.

		h.	h.		lines.
Sept. 28.	from	4 to 10	in the morning	aſcended	1.9
	——	10 to 4	in the afternoon	deſcended	1.2
	——	4 to 10	at night	aſcended	0.9
Sept. 29.	——	10 to 4	morning	deſcended	1.3
	——	4 to 10	morning	aſcended	1.5
	——	10 to 4	afternoon	deſcended	1.3
	——	4 to 10	night	aſcended	1.0
Sept. 30.	——	10 to 4	morning	deſcended	0.7
	——	4 to 10	morning	aſcended	1.4
	——	10 to 4	afternoon	deſcended	1.4
	——	4 to 10	night	aſcended	1.0
Oct. 1.	——	10 to 4	morning	deſcended	0.8

The flux and reflux of the air at the equator is, therefore, ſo much as to cauſe a variation in the barometer of about 1.2 line of the Engliſh diviſion, which ſuppoſes a riſe and fall in the atmoſphere of about a hundred feet. The combined action of the ſun and moon, according to M. Bernoulli, cauſes only an elevation of ſeven feet in the ſea at the equator. It is true, that there are corrections to be made, firſt, for the difference in temperature of the mercury in the barometer; ſecondly, perhaps for the difference in temperature of the air; and, thirdly, for the ſeven feet of riſe and fall of the ſea, on which we were placed while making the obſervations.

I leave it to more able philoſophers than myſelf to aſcertain, whether or not this obſervation be

agreeable to theory and calculations. Be this, however, as it may, it is evident from theſe obſervations, that meteorologiſts allow far too much to the action of the moon, as I formerly ſuſpected in my memoir on the fog of 1783, printed in the *Journal de Phyſique*, and which had been mathematically demonſtrated by the author of *La Coſmographie Elementaire* (M. de la Place). It would, however, be wrong to reckon as nothing the action of the moon, for by cauſing a variation of 1.3 line in the barometer, it may influence the atmoſphere, and occaſion ſenſible alterations.

I think it right to ſubmit to the inſpection of the academy my obſervations in the ſtate that they were made; I accordingly add them to this memoir. It ſhould be obſerved, that on account of the change of level in the reſervoir of the barometer, it will be neceſſary to add a line to the various heights of the mercury marked in the table.

TABLE

TABLE

OF OBSERVATIONS MADE EVERY HOUR, FROM 1° NORTH TO 1° SOUTH.

DATE.	Direction of the Veſſel.	Rate of Sailing.	Thermom. out of doors	Barometer.	Therm. of the Barom.	Hair Hygrom.	Direction of the Wind.	Weather.
		Leagues.	Degrees.	Inch. Lines.	Degrees.	Degrees.		
Sept. 28--4 morn.	W. by S.	1½	19½	29—8.9	20	97	S.	Fine, cloudy in the horizon, lat. 1° 5′ N.
5 —	W. S. W.	1	19½	29—8.9	20	97	S.	Do.
6 —	W. S. W.	1	19½	29—9.1	20	97½	S.	Do.
7 —	W. S. W.	1	20	29—9.3	21	98½	S.	Do.
8 —	W. S. W.	1	20	30—0.5	21	97	S.	Do.
9 —	W. S. W.	1	20½	30—0.8	21	96	S.	Do.
10 —	W. S. W.	1	20¾	30—0.8	21	95½	S.	Blue ſky, ſprinkled with clouds.
11 —	W. S W.	1	21	30—0.6	21½	95½	S.	Do.
noon	W. S. W.	1	21	30—0.2	21¾	95½	S.	Do.
1 —	W. S. W.	1	21	30—0	21¾	95½	S.	Do.
2 —	W. S. W.	1	21	29—9.7	21¾	97	S.	Cloudy.
3 —	W. S. W.	1	20	29—9.6	21	98	S.	Do.
4 —	W. S. W.	1	20	29—9.6	21	98	S.	Do. with drizzling rain.
5 —	S. W. by W.	1	20	29—9.6	21	98	S. by E.	Cloudy.

Date.	Direction of the Vessel.	Rate of Sailing.	Thermom. out of doors	Barometer.	Therm. of the Barom.	Hair Hygrom.	Direction of the Wind.	Weather.
		Leagues.	Degrees.	Inch. Lines.	Degrees.	Degrees.		
6 —	S. W. by W.	1	20	29—9 8	21	97 3/4	S. by E.	Cloudy.
7 —	S. W by W.	1	20	30—0.1	20 1/2	99	S. by E.	Do.
8 —	S. W. by W.	1	20	30—0.4	20 1/2	99	S. by E.	Do.
9 —	S. W.	1	20	30—0 5	20 1/2	98	S. S. E.	Do.
10 —	S. W.	1	19 3/4	30—0.5	20 1/2	98	S. S. E.	Do.
11 —	S. W.	1	19 3/4	30—0.3	20 1/2	98	S. S. E.	Do.
midnight	S. W.	1	19 3/4	30—0.1	20 1/2	98 1/2	S. S. E.	Do.
Sept. 29--1 morn.	S. W.	2/3	19 3/4	29—9.7	21	98 1/2	S. S. E.	Do.
2 —	S. W.	2/3	19 3/4	29—9.6	21	97	S. S. E.	Do. with a hollow sea.
3 —	S. W.	2/3	19 1/2	29—9.4	21	100	S. S. E.	Do.
4 —	S. W.	2/3	19 1/2	29—9.3	21	100	S. S. E.	Do. some drops of rain.
5 —	S. W. by W.	1	19 1/2	29—9.2	21	101	S. S. E.	Do.
6 —	S. W. by W.	1	19	29—9.2	20	101	S. S. E.	Do.
7 —	S. W. by W.	1	19	29—9.7	20	101	S. S. E.	Do.
8 —	S. W. by W.	1	19	30	21	99	S. S. E.	Cloudy.
9 —	S. W.	1	20	30—0.7	21	98	S. S. E.	Do.
10 —	S. W.	1	20 1/2	30—0.7	21	96	S. S. E.	Sun pale.
11 —	S. W.	1	21	30—0.3	22	95 1/2	S. S. E.	Sky blue with clouds.
noon	S. W.	1	21	30—0.2	21 1/2	95 1/2	S. S. E.	Cloudy.
1 —	S. W.	2/3	20 1/2	29—9.6	21	98	S. S. E.	Do.
2 —	S. W.	2/3	20 1/2	29—9.5	21	99	S. S. E.	Do.
3 —	S. W	2/3	20 1/2	29—9.4	21	98	S. S. E.	Do.

Date.	Direction of the Veſſel.	Rate of Sailing.	Thermom. out of doors.	Barometer.	Therm. of the Barom.	Hair Hygrom.	Direction of the Wind.	Weather.
		Leagues.	Degrees.	Inch. Lines.	Degrees.	Degrees.		
4 —	S. W.	$\frac{2}{3}$	$20\frac{1}{2}$	29—9.4	21	98	S. S. E.	Sky blue, with clouds.
5 —	S. W.	1	$20\frac{1}{2}$	29—9.4	21	98	S. E. by S.	Do.
6 —	S. W.	1	20	29—9 4	$20\frac{1}{4}$	98	S. E. by S.	Do. paſſed the line, lon. by the time-keepers, 181° 40′.
7 —	S. W.	1	20	29—9.3	$20\frac{1}{2}$	98	S. E. by S.	Fine, hollow ſea.
8 —	S. W.	1	20	30—0.2	$20\frac{1}{2}$	97	S. E. by S.	Do.
9 —	S. W.	1	20	30—0.4	$20\frac{1}{2}$	98	S. E. by S.	Do.
10 —	S. W.	$\frac{2}{3}$	20	30—0.4	20	99	S. E.	Do.
11 —	S. W.	$\frac{2}{3}$	20	30—0.4	20	99	S. E.	Cloudy.
midnight	S. W.	$\frac{2}{3}$	$19\frac{1}{2}$	30—0.3	20	98	S. E.	Do.
Sept. 30 -1 morn.	S. W.	1	$19\frac{1}{2}$	30—0.2	20	98	S. E.	Fine, ſome clouds.
2 —	S. W.	1	$19\frac{1}{4}$	29—9.4	20	99	S. E.	Fine, halo round Jupiter.
3 —	S. W.	$\frac{2}{3}$	19	29—9.8	20	99	S. E.	Fine, clouds in the horiz.
4 —	S. W.	$\frac{2}{3}$	19	29—9.7	20	91	S. E.	Do.
5 —	S. W.	$\frac{2}{3}$	19	29—9 9	20	91	S. E. by S.	Do.
6 —	S. W.	$\frac{2}{3}$	19	30—0.1	20	99	S. E. by S.	Cloudy.
7 —	S. W.	$\frac{2}{3}$	$19\frac{1}{4}$	30—0.3	20	98	S. E. by S.	Blue ſky, ſprinkled with clouds.
8 —	S. W.	$\frac{2}{3}$	20	30—0.7	21	96	S. E. by S.	Fine.
9 —	S. W. by S.	$\frac{2}{3}$	20	30—0.8	21	95	S. E.	Do.
10 —	S. W. by S.	$\frac{2}{3}$	20	30—1.1	$21\frac{1}{2}$	94	S. E.	Do.

Date.	Direction of the Vessel.	Rate of Sailing.	Thermom. out of doors	Barometer.	Therm. of the Barom.	Hair Hygrom.	Direction of the Wind.	Weather.
		Leagues.	Degrees.	Inch. Lines.	Degrees.	Degrees.		
11 —	S. W. by S.		21	30—1	21½	94½	S. E.	Fine.
noon	S. W. by S.		21	30—0.7	21½	94½	S. E.	Do.
1 —	S. W.		20	30—0.5	21½	95½	S. E. by S.	Do.
2 —	S. W.		19	30	20¾	95	S. E. by S.	Do. clouds in the horiz.
3 —	S. W.		19	29—9.8	20¾	96	S. E. by S.	Do.
4 —	S. W.		19	29—9.7	20¾	95½	S. E. by S.	Cloudy.
5 —	S. W.		19	29—9.9	20¾	95	S. S. E.	Fine, clouds in horizon.
6 —	S. W.		19	30—0.1	20¾	95	S. S. E.	Do.
7 —	S. W.		18½	30—0.3	20	95	S. S. E.	Do.
8 —	S. W.		18½	30—0.5	19¾	96	S. S. E.	Do.
9 —	S. W. by S.		18½	30—0.6	19¾	96	S. E. by S.	Do.
10 —	S. W. by S.		18½	30—0.7	19¾	97½	S. E. by S.	Some clouds.
11 —	S. W. by S.		18½	30—0.7	19¾	97½	S. E. by S.	Do.
midnight	S. W. by S.		19	30—0.6	19¾	95½	S. E. by S.	Black clouds.
Oct. 1—1 morn.	S. S. W.		19	30—0.3	19¾	96	S. E.	Fine, some clouds.
2 —	S. S. W.		19	29—0.9	19¾	95½	S. E.	Do.
3 —	S. S. W.		19	29—0.9	19¾	95½	S. E.	Do.
4 —	S. S. W.		19	29—0.9	19¾	95	S. E.	Fine.
5 —	S. S. W.		19	29—0.9	19¾	95	S. E.	Do.
6 —	S. S. W.		19	30—0.3	19¾	95	S. E.	Do. latitude 1° 34′ S.

While these observations were making the moon was in its last quarter, and the sun almost in the equator. I intend to repeat them the first time that we cross the line again, and on shore with a still more sensible barometer.——Off St. Catherine, Nov. 5, 1785.

DESCRIPTIVE NOTE

ON THE LIANES OF CHILI *;

By Ventenat, Member of the National Inſtitute.

THE name liane is uſed as a general term in the Eaſt and Weſt Indies to ſignify climbing plants. That ſpecies, the drawing of which was ſent by La Martinière, is an under ſhrub with a cylindrical ſtem, branched, furniſhed with tendrils, climbing. The leaves are alternate, on foot ſtalks inflated at their baſe. Each leaf is bi-ternate, that is to ſay, it is divided into three leaflets, each of which is again ſubdivided into three oval ſharp-pointed folioles, which, when young, are entire, but afterwards become obſcurely lobed. The flowers, diſpoſed in ſimple and pendent cluſters, grow towards the top of the ſtem and of the branches, in the axillæ of the leaves. The plant is dicœcious. At the baſe of each cluſter of bloſſoms are two ſmall, oppoſite, rounded, oval, floral leaves.

* The drawings of theſe lianes came to hand unaccompanied with any memoir or deſcription, for the ſupply of which deficiency I am indebted to the enlightened botaniſt who has ſo politely furniſhed this note. *(Fr. Ed.)*

Male Flower.—See Plate.

Calyx formed of ſix expanding leaves, oblong-oval, and obtuſe, of which the three outermoſt are the largeſt.

Corolla compoſed of ſix ſharp lanceolated petals, oppoſite to, and ſhorter than, the leaves of the calyx.

A cylinder riſes from the centre of the flower of the length of the petals, terminated by ſix oblong bilocular anthers, which open from below.

Female Flower.—See Plate.

Calyx, ſimilar to that of the male flower, but larger.

Corolla inſerted beneath the piſtil, compoſed of ſix petals, rarely entire, but generally bifid, or trifid, at their ſummit: ſhorter than the leaves of the calyx.

Stamina ſix, having the ſame inſertion as the corolla; filaments diſtinct, broad, very ſhort, ſurrounding the piſtil; *anthers*, ſix, upright, oblong, acuminated, barren.

Seed Bud—cells, from three to ſix, oblong, gibbous on the outſide, of nearly the length of the corolla; ſtyles, none; ſtigmata, ſitting, oblong, permanent.

 Berries,

Berries, equal in number to the cells, oblong, acuminated (divided into ſix cells, containing ſeveral angular ſeeds. *Flora Peruviana).*

This plant forms a new genus belonging to the dicœcia hexandria of Linnæus. We could have wiſhed to have given it the name of La Martiniere, but, on looking over the *Flora Peruviana*, printed at Madrid in 1794, we find it there mentioned by the name of *lardizabala*. It probably exiſts in the herbal of our fellow-citizen Dombey, who was ſent in 1774 to Peru, together with the authors of the *Flora Peruviana*, Ruiz and Pavon, to contribute to the advancement of natural hiſtory.

The general character of the *lardizabala* evidently places this new genus among the family of the *meniſpermæ*, to which it is related by its climbing ſtalk, its bunches of dicœcious flowers, by its ſix petals, ſtamina, and leaves of its calyx, by its piſtil compoſed of from three to ſix cells, which contain as many ſeeds. It differs from the known genera of this order only in its fruit, which, inſtead of being monoſpermous, contains ſeveral ſeeds. This character, which requires the introduction of a new ſection into the *meniſpermæ*, ſtrengthens the relation of this family to the next order of the *anonæ*. In fact, the greater part of the genera of the anonæ, as they have in the ſame flower ſeveral fruits, with numerous ſeeds, differ in this particular from all the genera of the meniſpermæ, and by placing between them

them the lardizabala, we eſtabliſh a natural tranſition. In order to confirm theſe reſemblances, it only remains to examine the inſide of the fruit, and particularly the ſtructure of the ſeeds. Thoſe of the meniſpermæ are reniform, at leaſt on the inſide, encloſed in a hinged pericarpium, and containing in their upper part a very ſmall dicotyledonous embryo. The characters that we have given of the lardizabala render probable a ſimilar ſtructure in its ſeeds. The authors of the *Flora Peruviana* do not mention it, becauſe, being probably not ſufficiently acquainted with the principles of the arrangement of nature, which is true ſcience, they have not attached to the characters, furniſhed by the ſeeds, all the importance that they merit. They are, nevertheleſs, looked upon by true naturaliſts as the touch-ſtone and verification of all others.

Skate Plant.

Liane of Chili called

Female Plant.

Natives Guilboqui.

TABLES,

SHEWING THE

COURSE of L'BOUSSOLE,

DURING THE YEARS

1785, 1786, 1787, and 1788,

FROM THE TIME OF THE SHIP'S SAILING FROM EUROPE TILL ITS ARRIVAL IN BOTANY BAY.

In theſe tables an account is given of the ſhip's poſition at noon; the declination of the needle as obſerved on the morning or evening of the ſame day; the degree in Reaumur's thermometer, and the height of the barometer at ſun-riſe; and laſtly, the inclination of the needle at the times when it was poſſible to obſerve it.

ABBREVIATIONS.

br. for *breeze*; fr. *freſh*; g. *gale*; l. *light*; w. *weather*; cl. *cloudy*; ſt. *ſtormy*; I. N. *Inclination of the Needle.*

N. B. By *miſt* is not meant *fog*, although the terms are often confounded, but *dark, heavy weather, rather inclining to be foggy and wet.*

Aug. & Sept. 1785.	Lat. Nor.		Longitude computed West.		Long. W. by the Time Piece, No. 19.	Lon. W. by the Dif. of the M. from the Sun.	Declination of the Needle W.		Ther.	Barom.	Wind, State of the Sky & Remarks.
	D.	M.	D.	M.	Point	D. M.	D.	M.	D.	P. L.	
A. 1	48	11	7	33	of Dep.	—	—		11 ½	28 02	E. th. w. rain.
2	47	09	9	08	—	—	—		14	27 11	S. S. E. fr. S. misty.
3	46	56	10	23	—	—	—		12 ¾	27 07	S. squalls, overcast, rain.
4	45	33	11	23	D.	M.	—	21 14	14	27 10	N. E. l. br. fair weather.
5	44	15	11	53	11	04	—	21 0	14 ½	28 04	N. W. l. br. fair.
6	43	23	12	37	11	42	—	22 40	15	28 04	N. N. E. l. br. cl.
7	41	19	14	01	—	—	—	—	15	28 04	N. E. fr. br. cl.
8	38	59	15	43	14	45	—	22 40	15	28 02	Do.
9	36	52	16	16	15	19	—	18 55	15 ½	28 04	N. E. fr. g. fair.
10	34	40	16	42	—	—	—	—	16 ½	28 03	N. E. l. br. fair.
11	33	02	17	13	16	21	—	19 0	17	28 02	N. N. E. l. br. fair.
12	32	57	18	37	17	45	—	—	17	28 92	N. N. E. l. br. misty. At 8 o'Clock, P. M. saw the Defart Iſlands.
13	32	59	19	23	—	—	—	—	18	28 04	E. S. E. l. b. fr. At 8 o'clock, P. M. anchored in the road of Funchal, iſl. of Madeira.
14	AMadeira		—		—	—	—	—	—	—	S. E. little or no wind, cl.
15	Do.		—		—	—	—	—	—	—	S. E. little wind, fr.
16	32	31	19	15	—	—	16	0	—	—	E. l. br. fr. At 9 o'clock A. M. ſailed from Madeira.
17	31	28	19	08	—	—	16	0	—	—	E. l. br. fr.
18	30	18	18	22	18	10	—	—	—	—	N. E. briſk g. ſaw the Salvaged Iſlands.
19	28	32	18	52	—	—	16	0	18	28,05	N. E. briſk g. at 4 o'clock, A. M. ſaw the Canary Iſlands, 2 leag. to the S. S. W. At 1, P. M. anch. in the road of Santa Cruz, iſl. of Teneriffe.
20	ATenerif		—		—	—	—	—	—	—	N. N. E. l. br. fr.
21	Do.		—		—	—	—	—	—	—	Do.
22	Do.		—		—	—	—	—	—	—	Do.
23	Do.		—		—	—	—	—	—	—	Do.
24	Do.		—		—	—	—	—	—	—	N. E. fr. g. fair
25	Do.		—		—	—	—	—	—	—	N. N. E. l. br. fair.
26	Do.		—		—	—	—	—	—	—	Do.
27	Do.		—		—	—	—	—	—	—	Do.
28	Do.		—		—	—	15	52	—	—	E. N. E. l. br. fair.
29	Do.		—		—	—	—	—	—	—	N. N. E. l. br. fair.
30	28	21	18	31	—	—	15	52	—	—	N. N. E. fr. g. fair. Sailed from Santa Cruz.
31	27	18	18	43	—	—	15	38	19	28 03	N. N. E. l. br. fair.
S. 1	25	37	19	09	—	—	15	10	18	28 03	N. E. fr. g. fair.
2	23	56	19	09	—	—	15	05	18 ¾	28 03	N. N. E. l. br. misty.
3	22	13	20	31	—	—	—	—	19	28 03	N. E. l. br. fair.
4	21	18	20	58	—	—	—	—	19	28 04	N. l. br. fair.
5	19	26	21	36	22	19	—	—	20	28 03	N. E. l. br. fair.
6	17	34	21	57	—	—	12	07	20	28 02	N. E. fr. g. fair.
7	16	16	22	01	22	34	—	—	20 ½	28 02	Ditto.
8	15	17	22	04	—	—	8	11	22	28 02	E. a calm, ſt.
9	14	58	22	10	—	—	—	—	22	28 02	S. S. E. a calm, ſt.
10	14	12	22	11	—	—	8	49	22 ½	28 02	E. very little wind, fair.
11	13	57	22	21	—	—	—	—	21	28 02	S. S. E. a calm, ſt.
12	13	07	22	32	—	—	—	—	20 ½	28 02	S. S. E. l. br. ſt.
13	12	09	22	38	22	10	—	7 45	19	28 03	N. N. E. l. br. ſt.
14	11	02	22	42	21	58	—	10 23	21 ½	28 02	N. l. br. fair. *Inc. N.* 20°.
15	10	22	22	43	—	—	—	10 16	21	28 02	N. N. W. l. br. fair.
16	9	10	22	10	—	—	—	—	21	28 02	S. W. l. br. misty.
17	8	30	21	33	19	47	—	—	20 ½	28 02	S. W. fr. g. cl.
18	7	37	20	56	18	56	—	12 04	20 ½	28 02	S. W. l. br. cl.
19	7	03	20	51	18	53	—	12 12	21	28 03	W. N W. little wind, fair.
20	6	07	20	48	—	—	—	—	19	28 02	N. W. l. br. misty.

Sept. Oct. Nov. 1785.	Lat. Nor.		Long. computed West.		Long. W. by the Time Piece, No. 19.		Long. W. by the Dif. of the Mn. from the Sun.		Declination of the Needle W.		Ther.	Barom.	Winds; State of the Sky; Remarks.
	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	P.	L.	
21	6	21	20	31	—		—		11	15	20	28	02	S. S. W. l. br. rain. Saw some birds.
22	4	42	19	44	—		—		—		20	28	03	S. S. W. fr. g. rain.
23	3	41	19	21	16	10	16	22	12	30	20	28	03	S. W. gusts of winds, thick w.
24	2	54	18	47	—		—		13	47	20 ½	28	03	S. W. l. br. fair.
25	2	22	18	20	14	28	—		—		20	28	03	S. S. E. l. br. rain.
26	1	39	18	46	15	37	15	46	13	26	20	28	03	S. l. br. cl.
27	1	17	19	24	—		—		13	36	20	28	03	Ditto.
28	0	50	20	12	17	31	—		—		19 ½	28	02	S. S. E. fr. g. gusts of wind. rain. *I. N.* 18°.
29	0	11	21	02	18	33	—		—		19 ½	28	02	S. S. E. fr. g. rain. *I. N.* 17°.
	Lat. S.													
30	0	42	21	47	19	12	—		—		19	28	03	S. E. fr. g. cl. *I. N.* 17°.
O. 1	1	43	22	10	19	41	—		9	50	19	28	03	S. E. l. br. fair. *I. N.* 16°.
2	3	00	22	38	20	22	—		9	59	19	28	03	S. E. fr. g. fair.
3	4	17	23	03	21	03	—		9	19	19	28	03	S. E. ½ E. fr. g. fair.
4	5	37	23	32	21	42	—		8	18	19	28	03	S. S. E. fr. g. fair. *I. N.* 10°.
5	6	50	24	00	22	12	—		8	43	19	28	03	S. E. fr. g. fair. *I. N.* 8°.
6	8	05	24	26	23	01	—		8	44	19	28	03	S. E. gusts of w. misty. *I. N.* 8°.
7	9	26	24	54	23	39	—		8	44	19 ½	28	03	E. S. E. fr. g. misty. *I. N.* 7°.
8	10	57	25	25	—		—		5	50	19 ½	28	04	E. S. E. gusts of w. cl. *I. N.* 8°.
9	12	14	25	56	—		—		5	30	18 ½	28	04	E. S. E. fr. g. cl.
10	13	23	26	18	25	23	—		5	14	18 ½	28	03	S. E. ½ E. fr. g. foggy.
11	14	29	26	40	25	47	25	24	4	07	18	28	03	S. E. l. br. misty. *I. N.* 2°.
12	15	46	27	02	26	30	26	12	3	34	18 ½	28	04	Ditto. *I. N.* 4°.
13	17	03	27	24	27	14	—		5	14	17 ½	28	04	E. S. E. fr. g. overcast. *I. N.* 5°.
14	18	39	28	04	28	09	—		3	01	17	28	04	E. N. E. fr. g. fair. *I. N.* 8°.
15	20	23	28	51	28	52	—		1	46	17 ½	28	03	N. E. fr. g. fair. *I. N.* 12°.
16	20	38	30	33	30	37	—		1	01	17. ½	28	03	N. l. br. Saw the isles of Martin Vas, about 10 leag. W. 34° N. *I. N.* 14°.
									East.					
17	20	39	31	24	—		—		0	57	—		—	N. N. W. l. br. fair. At 6 o'clock A. M. saw Trinity Island, about 8 leagues W. 17° N.
18	20	39	31	24	31	19	—		1	00	14 ½	28	02	N. N. W. l. br. misty. *I. N.* 15°.
19	21	01	33	15	—		—		—		18	28	02	S. S. E. fr. g. fair. *I. N.* 14°.
20	20	33	34	34	—		—		—		17	28	02	S. E. fr. g. overcast.
21	20	34	35	21	—		—		1	42	17	28	02	S. E. l. br. rain. *I. N.* 17°.
22	20	28	36	38	—		—		1	54	17	28	03	S. S. E. fr. g. fair.
23	20	29	37	53	37	13	—		—		16 ½	28	04	S. E. l. br. fair. *I. N.* 13°.
24	21	27	38	38	—		—		3	32	16	28	03	E. N. E. l. br. fair. *I. N.* 14°.
25	23	26	40	03	39	57	—		4	00	16 ½	28	00	N. E. fr. g. rain. *I. N.* 17°.
26	24	11	41	14	40	56	41	06	4	40	16 ½	28	01	W. N. W. heavy gales, rain and thunder.
27	25	03	42	01	41	26	41	45	4	55	17	28	00	W. N. W. fr. g. cl. *I. N.* 20°.
28	24	45	42	22	41	54	—		4	55	17	28	02	W. N. W. fr. g. cl. *I. N.* 20°.
29	24	49	43	19	—		—		—		16 ½	28	02	W. S. W. l. br. fair. *I. N.* 20°.
30	25	32	44	55	—		—		6	30	16 ⅔	28	01	E. N. E. l. br. fair. Saw some Albatrosses.
31	25	57	45	43	—		—		—		17 ½	28	00	S. E. l. br. rain.
N. 1	26	48	47	01	46	41	—		9	05	16 ½	28	02	S. E. fr. g. foggy.
2	27	33	48	05	—		—		9	50	15 ½	28	01	N. N. E. l. br. fair.
3	27	30	49	13	—		—		—		15	28	01	S. S. E. l. br. stormy, rain
4	27	11	49	14	—		—		11	30	14 ½	27	09	S. S. E. l. br. misty. At 3 o'clock P. M. saw the continent of Brasil, about 10 leagues distent W. 15° S.
5	26	51	49	35	49	49	—		12	12	14 ⅔	28	02	S. l. br. fair. Sounded in 37 and 40 fathoms, bottom sand and mud. *I. N.* 29°.

Nov. & Dec. 1795.	Lat. S.	Long. computed West.	Long. W. by the Time Piece, No. 19.	Long. W. by the Dif. of the Mn. from the Sun.	Declina. tion of the Needle E.	Ther.	Barom.	Winds, State of the Sky; Remarks.
	D. M	D. M.	D. M.	D. M.	D. M.	D.	P. L.	
N. 6	27 20	49 42	—	—	12 12	—	—	N. N. E. fr. g. fair. At 4 o'clock P. M. anchored at St. Catharine's in 7 fathom, bottom sand and mud.
7	At St. Cat.	—	—	—	—	15 ½	28 01	S. fr. g. fair.
8	—	—	—	—	—	—	—	S. varying to the N. E. fr. g. fair.
9	—	—	—	—	—	—	—	N. N. E. l. br. fair. Changed our anchorage.
10	—	—	—	—	—	—	—	N. N. E. fr. g. fair.
11	—	—	—	—	—	—	—	N. N. E. varying to the E. S. E. fr. g. ft. rain.
12	—	—	—	—	—	—	—	E. S. E. varying to the S. fr. g. foggy.
13	—	—	—	—	—	—	—	S. l. br. misty.
14	—	—	—	—	—	—	—	N. varying to the N. E. very little wind, fair.
15	—	—	—	—	—	—	—	S. ft. thunder.
16	—	—	—	—	—	—	—	N. N. E. l. br. fair.
17	—	—	—	—	—	—	—	N. ft. thunder and lightning.
18	—	—	—	—	—	—	—	N. almoſt a calm, ft.
19	27 21	50 0	—	—	12 0	—	—	S. S. W. very little wind, fair. Set ſail at 5 o'clock A. M. at 10 o'clock a calm. anchored 2 leagues N. of the firſt anchoring place; ſailed at 2 P. M. *I. N.* 30°.
20	27 27	49 15	—	—	11 0	17 ¾	28. 2	S. W. fr. g. cl.
21	27 59	48 33	—	48 53	10 0	15 ½	28 2	S. W. fr. g. fair.
22	28 52	48 02	—	—	11 16	16 ½	28 1	N. E. a calm, fair.
23	30 50	46 50	—	47 40	9 0	15 ½	28 0	N. E. fr. g. fair.
24	31 34	46 20	—	46 43	7 31	16 ½	28 2	S. E. l. br. misty. *In. N.* 33°.
25	32 35	45 38	45 38	—	7 20	17	28 2	N. E. l. br. misty.
26	33 36	44 32	—	—	7 20	15	28 1	N. E. varying to the E. S. E. very little wind, fair.
27	35 03	43 19	—	—	8 7	14	28 0	E. l. br. rain.
28	36 24	43 89	44 10	—	7 10	13	27 11	S. gusts of Wind, cl.
29	35 44	42 58	42 59	—	8 21	13 ½	28 2	W. l. br. *In. N.* 41°.
30	36 27	41 58	41 41	—	8 52	14	28 3	N. N. W. very little wind, fr.
D. 1	37 38	40 21	39 29	—	—	14	28 3	W. N. W. fr. g. fr. *In. N.* 43°.
2	38 36	39 30	—	—	—	13 ½	28 3	S. S. W. freſh g. rain.
3	40 01	37 58	—	—	—	11 ½	27 11	Do. *In. N.* 43°.
4	40 49	37 02	—	—	7 32	10	28 0	S. W. freſh g. fr.
5	42 35	36 51	—	—	7 34	10 ½	28 2	W. N. W. freſh g. fr.
6	43 48	36 27	—	—	8 32	8 ½	27 10	S. W. freſh g. overcaſt
7	44 34	35 38	33 09	34 10	6 59	6 ½	27 11	Do. *In. N.* 50°.
8	45 03	35 28	—	—	—	7 ½	27 11	N. W. little wind, fr.
9	44 13	35 45	34 44	35 50	—	9	27 10	W. N. W. gusts of wind, rain.
10	44 44	36 39	—	—	8 27	9	27 9	N. freſh g. fr.
11	44 51	37 12	34 09	—	—	5	27 5	S. W. ſqually weather, rain.
12	44 38	38 02	—	—	—	7	28 0	N. N. W. freſh g. rain.
13	45 19	38 52	—	—	8 33	7	27 10	S. W. ¼ W. gusts of wind, rain.
14	44 0	39 10	—	—	9 20	7	28 1	N. W. l. br. fair. *In. N.* 51°.
15	43 27	40 16	36 26	—	8 32	8	28 4	W. S. W. freſh g. fr.
16	44 13	41 34	—	—	—	9 ½	27 10	N. N. E. very little wind, cl.
17	44 42	41 49	38 06	—	10 47	7	28 2	W. l. br. fr.
18	44 53	42 55	39 25	—	11 52	7 ½	27 0	W. N. W. l. br. foggy.
19	44 35	44 32	—	—	11 56	10	28 1	Do.
20	44 47	45 35	42 25	—	12 16	9	28 0	W. N. W. l. br. foggy.
21	44 50	46 20	—	—	—	9	28 0	W. N. W. l. br. misty.
22	44 44	46 50	44 08	44 41	12 53	9 ½	28 0	N. W. l. br. misty.
23	43 26	46 58	—	—	12 39	10	27 10	W. S. W. l. br. fr.

Dec. Jan. & Feb. 1785.	Latitude South.		Long. computed West.		Long. W. by the Time Piece, No. 19.		Long. W. by the Dif. or the N. from the Sun.		Declination of the Needle E.		Ther.	Barom.		Winds; State of the Sky; Remarks.
	D	M.	D.	M.	D.	M.	D.	M.	D.	M	D.	P.	L.	
D.24	43	26	47	37	—		—		12	58	10	28	0	W. S. W. l. br. fr.
25	42	23	48	10	—		—		—		10	27	7	S. W. l. br. rain.
26	42	23	48	37	—		—		—		9	28	0	S. S. W. squally w. fr.
27	42	42	49	17	47	50	—		13	50	9 ½	28	0	S. S. E. p calm, rain.
28	42	2	49	59	47	59	—		—		10 ½	27	11	S. E. almoſt a calm, fair.
29	41	45	51	6	48	57	—		14	47	10	27	11	N. W. very little w. fr.
30	42	9	51	58	49	20	—		14	17	10	28	0	S. S. W. guſts of wind, rain.
31	42	19	53	7	—		—		—		10	28	1	W. N. W. freſh g. cl. *In. N.* 50°.
1786														
J. 1	41	33	53	27	51	5	—		15	29	12	28	0	S. W. l. breeze, fr.
2	41	29	54	19	52	11	—		—		14	28	2	N. N. W. freſh g. fr. *In. N.* 51°.
3	42	35	55	50	53	20	—		16	45	14	27	11	W. freſh g. fr. *In. N.* 52°.
4	42	45	56	50	54	42	55	47	16	11	10 ½	28	0	N. N. E. l. breeze, fr.
5	43	38	58	11	55	44	57	4	17	44	12	27	9	N. N. W. freſh br. cl.
6	44	44	59	0	—		—		17	9	12	27	9	W. S. W. a calm, fair.
7	44	55	59	51	57	23	—		17	21	10	27	11	N. W. guſts of wind, cl.
8	45	31	60	48	58	17	59	17	18	18	10	27	6	S. W. freſh g. fr. *In. N.* 55°.
9	46	48	61	48	59	47	—		18	45	9 ½	27	6	W. ¼ N. W. l. br. fr.
10	47	47	62	17	—		—		—		8	27	5	S. W. ½ W. freſh g. miſty. *In. N.* 57°.
11	48	12	62	44	60	26	—		21	26	10	27	11	S. W. freſh g. fr.
12	47	58	63	22	61	15	—		20	19	8 ½	27	8	S. S. W. very little wind, fr. *In. N.* 59°.
13	46	50	64	20	—		—		22	24	8	28	2	S. S. W. ſqually w. fr.
14	47	60	65	44	—		—		22	0	10	27	8	S. W. l. breeze, fr.
15	48	55	66	59	—		—		21	46	10 ½	27	5	W. N. W. freſh g. fr. *In. N.* 59°.
16	49	40	67	7	64	43	—		20	16	9	27	11	N. W. l. br. fr.
17	50	5	68	1	—		—		21	25	7	28	1	S. S. E. f. eſh g. fr. *In. N.* 52°.
18	48	56	68	41	66	43	—		21	20	9	28	4	S. l. br. fr.
19	50	15	69	27	67	39	—		21	54	9	28	5	N. E. l. br. fr.
20	50	57	70	45	68	48	69	46	21	22	8 ½	28	2	N. W. very little wind, fr. *In. N.* 51°.
21	51	35	71	8	—		—		22	47	9	28	0	S. S. E. l. br. fr. At 4 o'clock, A. M. ſaw the coaſt of Patagonia.
22	52	21	70	58	68	55	69	38	22	49	10 ½	28	2	N. l. br. fr. Cape Fair Weather, about 5 leagues diſtant, W. 26° S. *In. N.* 62°.
23	53	40	70	17	68	6	68	6	20	10	8 ½	28	2	W. l. br. fr. The land neareſt in ſight, bore S. 5° W. at about 5 leagues diſtance.
24	54	35	69	3	66	41	68	4	21	0	10	28	1	N. W. l. br. fr. Cape St. Vincent bore E. 11° S. at about 4 leagues diſtance. Left the Sts of Le Maire. *In. N.* 63°.
	54	57	67	57	P. of Dep.		—		—		—	—		
25	55	48	68	0	—		—		21	0	9	27	8	S. W. freſh g. fr. *In. N.* 63°.
26	57	13	68	25	66	36	—		—		6	27	7	W. guſts of wind, cl.
27	57	59	69	17	—		—		20	30	4 ½	27	3	W. S. W. fr. g. foggy, heavy ſea. *In, N.* 65°.
28	57	58	70	58	68	18	—		—		4 ½	27	4	S. S. E. Squally w. cl.
29	58	22	72	7	—		—		—		4 ½	27	4	W. freſh g. rain. *In. N.* 67.
30	57	54	72	27	—		—		22	30	5	27	4	W. S. W. fr. g. cl.
31	58	23	72	43	—		—		—		6	27	6	W. ¼ N, W. very little wind, a fog. *In. N.* 66°.
F. 1	58	3	73	26	71	25	—		23	28	6	27	7	W. l. br. cl. *In. n.* 66°.
2	58	24	74	37	—		—		25	89	6	27	4	N. freſh g. driz. *In. N.* 68°.
3	58	51	76	17	—		—		25	0	6	27	4	N. fr. g. cl.
4	58	50	76	42	—		—		24	30	4 ½	27	1	W. guſts of wind, rain.
5	59	48	77	28	—		—		—		4 ½	27	5	W. N. W. freſh g. r. *In.* N. 70°.
6	60	38	78	32	77	21	—		—		4 ½	26	11	W. l. breeze, overcaſt.
7	59	20	80	26	78	41	—		—		3 ½	27	4	S. W. freſh g. ſnow. *In. N.* 72°.
8	58	38	81	42	79	52	—		—		3 ½	27	1	S. E. Squally weather, cl.

Feb. Mar. 1786.	Lat. South.		Long computed West.		Long. W. by the Time-Piece, No. 19.		Long. W. by the Dif. of the M. from the Sun.		Declination of the Needle E.		Ther.	Barom.	Winds, State of the Sky, Remarks.
	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	P. L.	
F. 9	57	21	84	36	82	38	—		—		5	27 02	S.S.W. squally w. cl. *I.N* 71°.
10	56	01	86	23	—		—		20	5	4 ½	27 05	S. W. fr. g. fair.
11	53	39	87	2	84	15	—		—		5 ½	27 09	Ditto.
12	53	05	87	55	84	114	—		22	29	4 ½	27 09	S. W. fr. g. cl. *I. N.* 68°.
13	51	17	88	01	—		—		20	08	5 ½	27 06	S.W. squally w. rain. *I.N* 67°.
14	49	58	87	58	—		—		—		5 ½	27 10	W. fr. g. rain.
15	48	03	87	38	—		—		—		7	27 08	Ditto. *I. N.* 64°.
16	45	17	87	18	82	22	—		17	30	7	27 00	S. S. W. fr. g. fair. *I. N.* 63°.
17	43	25	86	27	81	24	—		—		9 ½	28 01	W. fr. g. foggy. *I. N.* 60°.
18	42	13	85	55	80	36	—		14	27	10 ½	28 01	W. l br. fair. *I. N.* 58°.
19	41	04	84	55	79	20	80	25	14	10	12	28 01	S. W. fr. g. fair. *I. N.* 55°.
20	39	54	83	31	77	42	78	32	14	23	13 ½	28 02	W.S.W. l. br. fair. *I. N.* 55°.
21	39	8	81	56	76	17	77	18	14	29	13	28 03	S. S. W. l. br. fair. Saw land a-head.
22	37	51	80	50	75	13	76	10	15	44	13	28 03	S. fr. g. fair. At 8 A. M. the coaſt of Chili, which we ſaw on the 21ſt. bore E. N. E. diſtant about 6 leagues. *I. N.* 52°.
23	36	42	80	15	75	00	75	53	15	30	12 ½	28 01	S. fr. g. fair. The point of Biobio bore E. 20° S. At 6 o'clock P.M. ſounded in 16, 15, and 14 fathom. At 8 P.M. anchored in the bay of Talcaguana, in 11 fathom; bottom clay, or ſand and mud. *I. N.* 50°.
	Latitude of the obſervatory at Talcaguana.				Longit. of the obſervatory at Talcaguana.								
24	36	43	←		75	30	—		—		9 ½	28 01	S. S. W. very little wind. Anchored further in the bay, in 6¼ fathom, bottom ſand and mud.
25	Ditto		—		Ditto		—		—		—	—	W. varying to the W. S. W. l. br. fair.
26	Ditto		—		—		—		—		—	—	S. W. l. br. fair. *I. N.* 51°.
27	Ditto		—		—		—		—		—	—	S. S. W. l. br. fair.
28	Ditto		—		—		—		—		—	—	Ditto.
M. 1	Ditto		—		—		—		—		—	—	Ditto.
2	Ditto		—		—		—		—		—	—	S. W. l. br. fair.
3	Ditto		—		—		—		—		—	—	Ditto.
4	Ditto		—		—		—		—		—	—	Ditto.
5	Ditto		—		—		—		—		—	—	Ditto.
6	Ditto		—		—		—		—		—	—	Ditto.
7	Ditto		—		—		—		—		—	—	S S. W. l. br. fair.
8	Ditto		—		—		—		—		—	—	Ditto.
9	Ditto		—		—		—		—		—	—	S. W. l. br. fair.
10	Ditto		—		—		—		—		—	—	Ditto.
11	36	43	—		75	30	—		15	15 Obſerved at the obſervatory with the compaſs Nos. 1, 2, 3.	—	—	S. S. W. l. br. fair.
12	Ditto		—		—		—		—		—	—	S. W. l. br. fair.
13	Ditto		—		—		—		—		—	—	S. S. W. very little wind. fair
14	Ditto		—		—		—		—		—	—	N. l. br. foggy.
15	Ditto		—		—		—		—		—	—	N. varying to the N. N. W. cl.
16	Ditto		—		—		—		—		—	—	N. fr. g. rain.
17	Ditto		—		—		—		—		—	—	S. S. E. very little wind, fair.
18	36	27	75	34	—		—		16	14	11 ½	28 02	S. fr. g. Sailed from Talcaguana, coaſt of Chili, at one o'clock, P. M.
19	35	28	76	44	—		—		—		—	28 03	S. fr. g. fair.

Dec. Jan. May. 1786.	Latitude South:	Long. computed West.	Long. W. by the Time Piece, No. 19.	Long. W. by the Diſt. of the M. from the Sun.	Declina tion of the Needle E.	Ther.	Barom.	Winds; State of the Sky; Remarks.
	D. M.	D. M.	D. M.	D. M.	D. M.	D.	P. L.	
M2	33 4	78 57	—	—	14 11	11	28 2	S. S. W. fr. g. fair. *I. N.* 49°.
2	32 32	81 21	—	—	—	13	28 4	S. fr. g. fair. *I. N.* 48°.
22	31 28	83 34	—	—	—	13	28 4	S. S. E. fr. g. fair.
23	30 3	86 1	86 52	85 39	16 50	14	28 4	E. fr. g. overcaſt, rain.
24	29 45	87 54	87 44	87 33	14 0	15	28 2	S. S. E. fr. g. fair.
25	29 12	89 34	89 12	89 14	19 2	14 ½	28 2	S E. freſh g. rain. *In. N.* 46°.
26	28 31	91 16	90 52	—	9 10	15	28 4	S. E. freſh g. fair.
27	27 56	93 27	—	—	7 50	16 ½	28 5	E. S. E. freſh g. cl. *In. N.* 44°.
28	27 38	95 42	—	—	—	16	28 5	E. freſh g. cl.
29	27 16	97 51	97 49	—	6 15	17	28 4	E. freſh g. miſty.
30	27 7	99 36	99 11	—	6 22	16 ½	28 3	E. S. E. l. br. rain. *In. N.* 42°.
31	27 1	101 37	101 1	—	5 5	17	28 4	S. E. l. br. fair. *In. N.* 43°.
1	27 4	103 57	103 2	—	6 31	17 ½	28 4	Do. *In. N.* 43°.
2	27 9	105 65	105 17	—	5 44	18	28 4	E. freſh g. cl.
3	27 5	107 41	107 19	—	—	18	28 4	N. E. freſh g. fr.
4	27 12	109 30	108 49	—	—	19	28 3	N. l. breeze, fr.
5	27 5	109 46	—	—	—	19	28 2	N. l. br. cl.
6	27 2	109 41	109 22	—	—	19	28 0	W. N. W. heavy g. rain.
7	26 58	110 1	109 53	—	—	18	28 2	S. E. l. breeze, rain.
8	27 8	111 16	110 56	—	—	17	28 1	N. E. freſh g. cl. At 3 P. M. ſaw Eaſter Iſland, in the W. ½ S. W. about 12 leagues diſtant.
9	27 9	112 18	111 51	—	—	17 ½	28 6	S. S. E. freſh g. fr. At 2 P. M. anchored at Eaſter Iſland, in 36 fathom, bottom fine grey ſand.
	Latitude of Eaſter Iſland at the Place of Anc.		Long. of Eaſter Iſland at the Place of anch.					
10	27 9	111 56	111 56	—	3 10	17 ½	28 2	S. S. E. l. br. fr. At 8 P. M. ſailed from Eaſter Iſland.
11	26 24	112 6	111 51	—	2 26	17	28 3	S. S. E. l. br. fr. *In. N.* 41°.
12	25 0	111 59	111 52	—	3 11	17 ½	28 3	E. S. E. l. br. fr. Saw Eaſter Iſland, diſtant 20 leagues. *In. N.* 41°.
13	23 22	111 57	111 47	—	3 58	17 ½	28 3	S. E. freſh g. fr. *In. N.* 38°.
14	21 47	111 51	111 54	—	3 40	17 ½	28 2	S. E. l. br. fr. *In. N.* 34°.
15	20 34	111 45	111 52	—	4 32	18 ½	28 5	E. S. E. l. b. fr. *In. N.* 33°.
16	19 4	111 50	112 14	—	4 46	19	28 3	E. N. E. l. br. fr. *In. N.* 32°.
17	17 30	112 18	112 55	—	4 20	19	28 3	N. E. fr. g. cl.
18	16 1	112 31	113 6	—	4 52	18	28 3	E. N. E. fr. g. fr.
19	14 8	112 29	113 16	—	4 50	19	28 2	E. freſh g. cl.
20	12 15	112 25	113 31	113 15	5 5	19 ½	28 2	E. S. E. freſh g. fr.
21	10 7	112 23	113 28	113 25	5 23	19 ½	28 2	E. freſh g. fr.
22	8 19	112 39	114 10	—	—	20	28 2	E. S. E. freſh g. fr.
23	6 30	112 56	114 40	114 35	—	21	28 1	S. E. freſh g. fr.
24	5 26	113 23	115 43	—	—	20 ½	28 2	S. S. E. l. br. fr.
25	4 17	114 9	116 49	—	3 35	20 ½	28 3	S. E. l. br. fr.
26	3 21	114 53	117 49	—	3 9	20 ½	28 2	E. S. E. l. br. fr.
27	2 15	115 26	118 26	—	2 21	20	28 1	E. freſh g. fr.
28	0 54	116 2	118 45	—	2 6	20	28 1	S. S. E. l. br. fr.
	Lat. N.							
29	0 18	116 33	118 0	—	2 58	19 ½	28 1	S. E. l. br. fr.
30	1 40	117 11	119 7	—	1 1	21	28 1	Do.
M. 1	2 59	118 0	119 53	—	—	21	28 1	Do.
2	4 6	118 54	120 35	—	—	21	28 1	Do.
3	5 7	119 32	121 14	—	0 44	21	28 1	Do.
4	5 49	119 46	121 2	—	1 2	21	28 1	Do.
5	6 11	119 55	—	—	1 35	21 ½	28 1	E. N. E. very little wind, fr.
6	7 6	120 50	121 46	—	—	21 ½	28 1	N. E. l. br. fr.
7	8 17	121 33	122 55	—	—	21	28 1	E. l. br. rain.

May. June. 1786.	Lat. Nor.		Long. computed W.		Long. W. by the Time-Piece, No. 19.		Long. W. by the Dif. of the M. from the Sun.		Declination of the Needle East.		Ther.	Barom.		Winds; State of the Sky; Remarks.
	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	P.	L.	
M. 8	9	25	122	11	123	54	—		3	17	21 ½	28	1	N. E. l. br. cl.
9	10	44	123	25	125	34	—		—		21	28	2	N. E. fr g. cl.
10	11	52	124	36	127	01	—		2	28	20	28	2	N. E. freſh g. fr.
11	13	34	125	39	128	19	—		—		20	28	2	N. E. freſh g. fr.
12	14	46	126	46	129	38	—		—		19 ½	28	2	N. E. freſh g. cl.
13	16	20	127	59	131	51	—		—		19 ½	28	3	Do.
14	17	48	129	13	132	35	—		—		20 ½	28	3	Do.
15	19	11	130	27	134	01	—		4	0	16 ½	28	3	E. N. E. fqually w. cl.
16	19	51	132	22	135	50	—		—		16 ½	28	3	N. E. fr. g. fair. Saw the trunk of a tree. *I. N.* 32°.
17	19	59	133	34	137	36	—		—		17 ½	28	3	E. N. E. l. br. varying to the N. E. fair. *I. N.* 31°.
18	20	03	135	09	139	00	—		6	38	17	28	3	E. N. E. l br. fair.
19	20	03	136	51	140	52	140	48	6	51	16	28	3	E. fr. g. ſt. rain. *I. N.* 33°.
20	19	58	138	33	142	31	142	20	—		17 ½	28	3	E. N. E. fr. g. fair.
21	19	57	140	12	144	11	144	2	8	20	17 ½	28	3	E. fr. g. fair. *I. N.* 32°.
22	20	02	142	16	146	24	—		9	0	17 ½	28	3	E. N. E. fr. g. fair.
23	20	07	143	52	148	07	—		9	18	16 ½	28	4	E. fr. g. fair.
24	20	47	145	54	150	26	—		—		18	28	4	Do. *I. N.* 31°.
25	20	58	148	05	152	36	—		—		19	28	3	E. N. E. fr. g. fair. *I. N.* 32°.
26	21	00	150	04	154	34	—		9	20	18	28	4	Do.
27	21	03	151	54	156	12	—		—		18	28	4	E. fr. g. fair.
28	20	50	152	56	157	19	—		—		18	28	4	E. l. br. cl. At 8 o'clock A. M. ſaw the Sandwich Iſlands. *I. N.* 33°.
29	20	34	153 158	56 19	158	25	—		8	40	18	28	4	E. N. E. l. br. fair. Running along the iſle of Moweé at 1 leagu dif. that of Tahoorowa bore W. 15°. S. at 5 or 6 leagues diſtance. Anchored at ½ paſt 5 P. M. in the bay at the S. E. end of the iſle of Moweé, in 25 fathom, bottom fine grey ſand.
			Long. at the place of weigh. ing anch. taken at noon, according to Cook's chart.											
30	—		—		—		—		8 a 34 8 51		19	28	4	E, varying to the E. S. E. fr. g. Sailed at 9 o'clock P. M. from Moweé.
31	21	15	159	34	159	41	—		—		20	28	4	S. E. varying to the E. S. E. and E. N. E. fr. g. At 6 o'clock P. M. the iſland Wohaoo bore S. at about 7 leagues diſtance. *I. N.* 20°.
J. 1	22	53	159	59	160	21	—		—		18	28	5	N. E. varying to E. N. E. fr. g. *I. N.* 34°.
2	24	49	160	05	160	22	160	16	8	42	—	28	5	E N. E. fr. g. fair. *I. N* 38°.
3	26	29	160	25	161	00	—		—		18 ½	28	6	Do. *I. N.* 38°.
4	28	02	160	45	161	15	—		10	27	18	28	5	E. N. E. fr. g. fqually, rain.
5	29	09	160	45	161	15	—		11	0	19	28	4	E. N. E. varying to the S. E. l. br. fair.
6	30	47	160	22	160	40	—		11	15	17 0	28	2	S. E. varying to the S. fr. g fair. *I. N.* 44°.
7	32	15	159	56	161	30	—		—		16 ½	28	2	S. W. fqually, much rain.
8	33	54	159	24	159	31	—		11	40	16 ½	28	4	Fr. g. cl. *I. N.* 50°.
9	34	57	159	03	—		—		—		15	28	5	S. varying to the W. N. W. fr. g. rain.
10	35	51	158	43	—		—		—		15	28	5	S. l. br. fog and rain. *I. N.* 53°.
11	37	02	158	34	—		—		—		12	28	5	S. varying to the E. N. E. fr. g. rain. *I. N.* 51°.
12	38	02	158	15	—		—		—		12	28	4	E. varying to the S. W. l. br. rain.
13	39	19	157	47	—		—		—		12 ½	28	5	S. S W. fr. g. fog and rain. *I. N.* 53°.

June, July, 1780.	Latitude North.	Long. computed West.	Long. W. by the Time Piece, No. 19.	Long. W. by the Diff. of the M. from the Sun.	Declination of the Needle East.	Ther.	Barom.	Winds; State of the Sky; Remarks.
	D. M.	D. M.	D. M.	D. M.	D. M.	D.	P. L.	
J. 14	41 17	157 3	156 15	—	—	11 ½	28 3	S. W. fresh g. very foggy. *In. N.* 56°.
15	43 12	155 48	154 54	—	—	8	28 1	W. fresh g. fr. *In. N.* 59°.
16	44 59	154 25	—	—	—	7 ¼	28 1	W. N. W. fresh g. misty. *In. N.* 60°.
17	46 52	152 58	—	—	—	7	28 2	W. fresh g. cl. *In. N.* 61°.
18	48 22	152 4	149 42	—	—	5 ¼	28 1	W. varying to the S. W. squally, rain. *In. N.* 64°.
19	50 5	151 10	148 29	—	22 50	5 ½	27 1	W. S. W. fr. g. squally, rain at intervals. *In. N.* 66°.
20	51 50	150 17	147 27	148 4	22 38	5 ¼	27 9	W. N. W. fresh g. overcast. *In. N.* 68°.
21	53 17	149 31	—	—	24 49	5 ½	28 1	W. varying to the S. E. fr. g. cl.
22	55 41	147 48	145 8	—	25 30	5 ½	28 1	E. fresh g. overcast. Saw many fragments of trees and whales. *In. N.* 72°.
23	57 46	146 0	143 42	—	27 40	6 ½	28 1	E. S. E fresh g. cl. Saw many birds and sea weeds. *In. N.* 74°.
24	59 22	145 3	143 4	—	—	11	28 0	E. S. E. fresh g. fr. At 5 A. M. Saw the coast of N America and at noon made Mount St. Elias, bearing N, 32°. W. *In. N.* 74°.
25	59 33	142 52	142 37	—	—	7 ½	28 0	S. S. W. varying to the E. very little wind, foggy. Sounded in 80 fathom, bottom, sand and mud.
26	59 41	143 23	142 41	—	31 14	6	28 1	W. S. W. a calm, fr. Mount St. Eliat bore W. 42°. N. founded in 45 fathom, bottom muddy. At 2 P. M. anchored in 50 fathom, bottom muddy. Set sail at 8 P. M. *In. N.* 74°.
27	59 18	142 41	—	—	32 19	5 ¾	27 8	N. N. E. very little wind, foggy, rain. At noon the land was concealed by a fog.
28	59 20	142 35	142 35	—	—	7	27 11	F. N. E. varying to E. S. E. very little wind. The nearest land bore N. 15°. W. at 6 leagues distance.
29	59 20	142 2	—	—	—	7	27 11	E. varying to S. S W. fr. g. foggy. The nearest land bore N. 4°. W. at about 6 leagues distance.
30	58 54	141 43	141 21	—	32 34	6	28 0	S. S. W. little wind, foggy. Cape Fairweather bore N. 78°. E. at 10 P. M. anchored in 32 fathoms, bot. muddy.
Jy. 1	59 7	141 3	140 52	—	31 22	7	28 2	S. W. l. br. fr. Set sail at 11 A. M. *In. N.* 76°.
2	58 38	140 28	—	—	30 34	7 ¼	28 3	W. a calm. Made Mount Fairweather, bearing N. 6°. E. At 8 P. M. anchored in the entrance of a harbour which borr N. 39 W. distance a ¼ of a league. At 9 P. M. set sail.
3	58 38 Lat. at the Place of anchor.	140 22	139 46 Lo. at the Place of anchor	—	—	5 ½	28 2	W. l. br. fr. At 6 A. M. anchored in the harbour in 6 fathom, bottom sandy.

July 1766.	Latitude North.	Long. computed West.	Long. W. by the Time Piece, No. 19.	Long. W. by the Dif. of the M. from the Sun.	Declination of the Needle East.	Ther.	Barom.	Winds; State of the Sky; Remarks.
	D. M	D. M.	D. M.	D. M.	D. M.	D.	P. L.	
J. 4	At anch. in Portde Francois.	—	—	—	—	6	27 9	N. W. fr. br. During the day shifted anchor; the Isle of Cenotaph bore E. 27°. N. and the entrance of the harbour S. 20°. E.
5	At anch. in a creek N. W. of Port de s Francois.	—	—	—	—	8	28 1	S. W. varying to the N. W. very little wind. Shifted anchor to set the ship clear of the swell at the entrance of the harbour. *In.* N. 74°.
6	At anch. in the inner extremity of Port des Francois.	—	—	—	—	6	28 1	E. S. E. Set sail and worked farther into the harbour: anchored in 13 fathom bottom muddy; the middle of Cenotaph isle, bore S. E. a half cable's length distance; the entrance of the harbour by the S. W. Point of the Island, bore S. 15° W.
7	Do.	—	—	—	—	8 ½	28 2	E. varying to the S. E. l. br. fr.
8	Do.	—	—	—	—	7 ½	28 2	W. N. W. little wind, fr.
9	Do.	—	—	—	—	8	27 10	A calm, rain.
10	Do	—	—	—	—	—	—	N. W. little wind, misty.
11	Do.	—	—	—	—	—	—	W. N. W. very little wind, fr.
12	Do.	—	—	—	—	—	—	E. N. E. very little wind, fr.
13	Do.	—	—	—	—	—	—	E. l. br. fr.
14	Do.	—	—	—	—	—	—	W. N. W. little wind, fr.
15	Do. 58 29 Latitude of the Observation.	—	—	—	—	—	—	W. varying to W. S. W. little wind. At 4 A. M. made sail for the entrance of the harbour. At 8 A. M. anchored in 46 fathom, bottom muddy.
16	—	—	—	—	—	—	—	E. N. E. very little wind. At 4 A. M. sailed, and anchored at 10, waiting for the tide in 15 fathom, bottom muddy.
17	—	—	—	—	—	8	27 10	E. l. br. rain. Squally weather in the night, harbour bore S. ¼ W.
18	At anch. in Portdes Francois.	—	—	—	—	11	27 8	E. N. E. fr. g. squally, rain.
19	Do.	—	—	—	—	7 ½	27 11	E. S. E. squally, misty, rain.
20	Do.	—	—	—	—	5	28 3	E. l. br. varying to the N. W. misty.
21	At anch. in the entrance of Portdes Francois.	—	—	—	—	6 ⅓	28 2	W. N. W. very little wind. At 8 A. M. set sail, and at 11 A. M. anchored in a creek to the N. E. in 9 fathoms water; bottom fine sand. The entrance of the harbour bore S. 20° E. and the middle of the isle of Cenotaph, N. 43° E. at 2 leagues distance.
22	Do.	—	—	—	—	6 ⅓	28 4	W. N. W. fr l. br. The tide not perceptible at this anchorage.
23	Do.	—	—	—	—	7	28 3	W. S. W. very little wind, fr.

July, Aug. 1786.	Lat. Nor.	Long. computed West.	Long. W. by the Time-Piece, No. 19.	Long. W. by the Dif. of the M. from the Sun.	Declination of the Needle E.	Ther.	Barom.	Winds; State of the Sky; Remarks.
	D. M.	D. M.	D. M.	D. M.	D. M.	D.	P. L.	
J. 24	At anch. in the entrance of Port des Francois.	—	—	—	—	7	28 2	E. S. E. varying to the N. E. l. br. fr. *In. N.* 73.
25	Do.	—	—	—	—	7 ⅓	28 3	E. S. E. l. br. misty.
26	Do.	—	—	—	—	8	28 1	E. N. E. l. br. rain.
27	Do.	—	—	—	—	7 ⅓	27 11	E. varying to the N. E. fr. g. rain.
28	Do.	—	—	—	—	6	27 11	N. E. l. br. rain.
29	Do.	—	—	—	—	5 ½	28 0	N. E. a calm, rain.
30	Do.	—	—	—	—	6	28 1	W. N. W. l. br. Made ready the sails, &c.
31	Do.	—	—	—	—	5	28 2	W. N. W. very little wind, fair. Set sail at 4, P. M
A. 1	58 22 Took for point of departure 58 d. 26 m. 25 f. N. latit. & 139 d. 50 m. W. long. the meridian of Paris.	139 46	—	—	31 0	8	28 2	W. N. W. l. br. fair. At noon the entrance of Port des Francois bore N. 10°, W. at about 4 leagues dif.
2	58 24	139 40	—	—	—	—	—	N. W. varying to the S. S. W. very little wind, fair. Mount Fair Weather bore N. 19° W. the entrance of Port des Francois N. 10° W.
3	58 12	139 31	—	—	30 20	—	—	W. very little wind, misty. The entrance of the bay of Crofs-found bore N. 48° E. at about 8 leagues dif.
4	57 47	138 39	—	—	—	—	—	E varying to the S. S W. by S. very little wind. The neareſt land bore N. 45° E. at about 6 leag. dif.
5	57 24	138 0	—	—	—	9	28 2	E. very little wind, foggy.
6	57 18	138 13	138 32	—	28 37	8 ⅔	28 1	W. N. W. very little wind, fair. The entrance of Port de los Remedios bore E. 32° N. dif. about 6 leag.
7	56 30	137 19	137 25	—	28 20	9 ⅔	28 1	N. E. very little wind, fair. Mount Hyacinth bore N. 56° W. and Cape Tſchirikow E. 23° S. *I. N.* 73°.
8	55 41	136 40	136 48	—	28 46	9	28 3	W. fair. l. br. Cape Tſchirikow bore N. 38° W. at about 3 leagues diſtance.
9	54 46	135 49	136 7	—	—	10	28 3	W. fr. g. misty. The middle of Iſle San Carlos bore N. 27° E. dif. about 2 leag.
10	54 23	135 27	135 3	—	—	9 ½	28 2	W. N. W. fr. g. very thick fog.
11	54 12	135 21	135 14	—	—	9 ½	28 2	N. N. W. l. br. foggy.
12	54 6	136 11	—	—	30 14	8 ⅓	28 1	Do.
13	54 4	136 15	—	—	—	9	28 1	S. very little wind, foggy.
14	53 50	135 51	135 46	—	—	9 ½	28 3	S. varying to the E. S. E. very thick fog. Saw in the day, land, at about 8 or 10 leagues diſtance.
15	53 50	135 40	135 59	—	—	9 ⅓	28 3	E. l. br misty. At 10 A.M. ſaw land from N. E. to E. about 10 leagues diſtant. At noon, foggy.

Aug. 1786.	Latitude North.	Long. computed West.	Long. W. by the Time Piece, No. 19.	Long. W. by the Dif. of the M. from the sun.	Declination of the Needle E.	Ther.	Barom.	Winds; state of the sky; Remarks.
	D. M.	D. M.	D. M.	D. M.	D. M.	D.	P. L.	
16	53 20	136 17	—	—	—	10 ½	28 1	E. l. br. misty. Saw land in the day, 8 or 10 leagues distant. Foggy at intervals.
17	53 12	136 7	136 36	—	27 54	10	28 0	N. E. very little wind, misty. At half past 5, the land bore from N. E. ¼ E. to E. S. E. distant about 8 leagues. At noon foggy.
18	52 35	134 21	134 1	—	27 56	10	28 0	N. W. l. br. fr. The entrance of Port de la Touche bore N. 21° E. at about 4 leagues distance. *In.* N. 78°.
19	52 3	134 1	134 1	—	25 38	11	28 1/2	N. W. varying to the S. W. little wind, misty. The nearest land bore N. 18° E. at 5 leagues distance.
20	51 40	133 19	133 33	—	24 8	11	28 1	N. W varying to the W. l. br. fr. Cape Hector bore N. 1° E. and the isles Kerouart, N. 5° E the Cape distant 3 leagues, and the isles 2½. At 7 P. M. founded in 100 fat. bottom rocky
21	52 1	132 48	132 50	—	24 3	11	28 0	W. varying to the S. S. W. fresh g. fr. Cape Hector bore S. 59° W. distant about 6 leagues; the largest of the Kerouart islands, S. 48° W. distant 6½ leagues, *In.* N. 73°.
22	55 22	131 38	—	—	—	10	28 3	S. varying to the S. E. fresh g. misty. Saw land at 11 A. M. the nearest in sight, bearing N. 75° E; the most westerly land N. 15° W. at about 6 leagues distance. At noon foggy.
23	51 47	132 5	131 43	—	24 31	11	28 3	S.E. heavy g. fog. At ½ past 5 A.M. saw a range of islands, gave the name of Cape Fleurieu to the most westerly, which bore N. 25° E. distant 9 leagues. At noon, foggy.
24	51 1	131 23	131 27	—	—	11 ½	28 3	W. N. W. l. br. foggy. The Sartine islands bore S. 65° E. at about 3 leagues distance. *In.* N. 67°.
25	49 59	129 58	130 5	—	24 10	12	28 3	W. N. W. l. b. fr. varying to the N. W. Point Boissée, N. 33° E.
26	49 16	129 25	129 37	—	22 18	12	28 0	E.S.E. very little wind, foggy.
27	48 59	129 46	—	—	—	12	28 0	W.S.W. a calm, very thick fog.
28	48 37	128 45	128 55	—	19 38	12 ½	28 0	N. l. br. foggy. At 2 P. M. saw land from N. to E.N.E. distant about 6 leagues, soon after foggy. *I.N.* 68°.
29	48 39	127 57	128 4	—	19 31	12 ½	28 2	W. N. W. fr g. misty. At 10 A. M. sounded in 45 & 35 fat. bottom grey sand. *In.* N. 68°.

Aug. Sept. 1786.	Lat. Nor.		Long. computed West.		Long. W. by the Time-Piece, No. 19.		Long. W. by the Dif. of the M. from the Sun.		Declination of the Needle E.		Ther.	Barom.		Winds; State of the Sky; Remarks.
	D.	M.	D.	M	D.	M.	D.	M.	D.	M.	D.	P.	L.	
A. 30	48	39	127	58	—		—		—		12 ½	28	2	S. S. W. fr. g. misty, rain. Sounded in 90 fathom, bottom muddy; a fog.
31	47	58	127	45	127	58	—		—		12	28	1	N. W. fr. g. very thick fog.
S. 1	46	39	126	20	126	45	126	37	18	53	11	28	1	W. N. W. very little wind; fr. g. at sun set. At noon saw land to the E. about 12 leagues distant.
2	45	57	125	58	126	30	—		17	7	11	28	3	N. very little wind, fair. Cape Round bore S. 48° E. at 6 leagues distance.
3	45	55	126	17	126	16	—		—		11	28	4	S S. W. almost a calm, fair. Cape Round bore S. 81° E. distant 5 leagues.
4	44	41	126	31	126	38	—		—		12	28	3	N. N. E. fr. g. foggy.
5	43	0	126	34	126	48	—		15	0	12	28	2	N. l. br. foggy. Saw land yesterday and to-day. *I.N.* 61°.
6	41	27	—		—		—		15	50	11 ¼	28	1	N. N. E. fr. g. foggy. Land out of sight by 10 A. M.
7	40	48	126	23	126	60	—		15	33	10 ¾	28	2	N. W. l. br. foggy.
8	39	54	126	50	127	7	—		14	24	12	28	2	N. N. W. a fine br. fair. At 10 saw land, which bore E. distant about 8 leagues.
9	39	2	126	20	—		—		—		12	28	0	N. N. W. fr. g. overcast.
10	38	16	126	18	—		—		—		11 ½	28	0	N. W. l. br. overcast. *I.N.* 57°
11	37	02	125	45	126	15	—		—		12	28	0	N. W. fr. g. overcast. *I.N.* 57°.
12	36	56	124	05	124	52	—		—		10 ½	28	0	N. W. fr. g. misty. *I. N.* 57°.
13	36	42	123	53	123	47	—		—		12	28	0	N. W. fr. g. foggy.
14	36	51	123	16	123	46	124	34	12	55	12	28	0	N. W. l. br. misty, a fog at intervals. The most easterly land in sight bore S. 39° E. the most westerly N. 20° W. distance of the nearest land about 3 leag *I. N.* 57°
15	—		—		—		—		11	57	—	—		N. W. varying to the S. W. fair. At 6 P. M. anchored in 46 fathom, bottom muddy; the place of anchorage at the bottom of the bay of Monterey bore S. 5° W. distant 2 leagues. Sailed at 11 A. M.
16	—		—		—		—		—		—	—		W. fr. g. fair. At 1 o'clock P. M. anchored in 12 fathom, bottom fine sand; the landing place bore S. 10° W. the prelidio S. 6° E. land distant not more than a quarter of a league.
17	—		—		—		—		—		—	—		W. N. W. fr. g. fair.
18	—		—		—		—		—		—	—		Do.
19	—		—		—		—		—		—	—		W. S. W. l. br. fair.
20	—		—		—		—		—		—	—		W. fr. g. fair.
21	—		—		—		—		—		—	—		W. N. W. l. br. fair.
22	—		—		—		—		—		—	—		W. N. W. varying to the S. W. l. br. fair.
23	—		—		—		—		—		—	—		W. N. W. fr. g. fair.

Sept. Oct. 1786.	Lat. Nor.		Longitude computed West.		Long. W. by the Time-Piece, No. 19.		Lon. W. by the Dif. of the M. from the Sun.		Declination of the Needle W.		Ther.	Barom.		Winds; State of the Sky; Remarks.
	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	P.	I.	
S. 24	36	38	123	44	123	46 By its run. since leav. Talcaguana.	123	34 Long. of the Point of Depart.	11	24	—	—		N. W. almoſt a calm. At 4 A. M. ſet ſail from Monterey; at 9, a calm; anchored in 30 fathom, bottom muddy; the fort bore S. 27° E. diſtant 2 leagues. Sailed at 1 o'clock P. M.
25	36	43	123	50	—		—		—		—	—		W. N. W. varying to the S. At noon, the fort bore E. 7° S. diſtant 5 leagues; and Cypreſs Point, on this ſide of the fort, bore alſo E. 7° S.
26	36	41	124	23	123	24	—		12	59	—	—		W. N. W. fr. g. fair.
27	35	44	125	7	—		—		—		13	—		W. N. W. fr. g. miſty. *I. N.* 52°.
28	34	12	126	39	—		—		—		13	—		N. W. fr. g foggy.
29	32	44	128	52	127	49	128	24	—		13 ½	—		N. fr. g. fair. *I. N.* 50°.
30	30	58	130	55	—		—		9	19	14 ½	—		N. N. E. fr. g. cl.
O. 1	29	24	132	34	—		—		9	46	14 ½	—		N. fr. g. fair.
2	28	39	134	0	—		—		9	30	15	—		N. E. l. br. fair.
3	28	10	135	13	—		—		9	35	15	—		Do. miſty.
4	27	54	135	49	134	50	—		8	39	15 ½	—		W. N. W. very little wind, fair. *I. N.* 43°.
5	27	29	136	16	135	29	—		9	14	15 ½	—		N. W. very little wind, fair.
6	27	35	137	34	136	55	—		10	20	15 ½	—		E. N. E. l. br. fair.
7	27	55	138	36	—		—		—		16	—		Do. *I. N.* 42°.
8	28	03	139	57	—		—		8	27	16	—		Do.
9	27	60	141	21	140	31	—		8	24	17	—		E. S. E. l. br. miſty.
10	27	59	143	03	—		—		9	13	17	—		Do.
11	27	53	144	42	143	42	—		—		17	—		Do. *I. N.* 41°.
12	27	52	145	12	—		—		—		16 ¼	—		S. very little wind, miſty.
13	27	51	145	32	144	52	—		8	38	16 ¼	—		S. very little wind, foggy. *I. N.* 41°.
14	27	44	146	36	146	1	147	44	—		17 ¼	28	3	S. E. l. br. fair.
15	27	52	148	14	148	4	—		9	24	17 ½	28	3	S E. fr. g. miſty. *I. N.* 41°.
16	27	55	148	14	—		—		9	28	17 ½	28	3	A calm, a fr. br. from the S. S. E. miſty.
17	27	49	148	46	148	8	149	26	—		18	28	3	A calm, thunder and rain.
18	27	44	149	49	—		—		9	34	18	28	4	A calm, ſt.
19	28	02	149	11	—		—		9	40	17	28	3	S. W. l. br. miſty.
20	27	37	149	48	—		—		8	57	17	28	3	N. E. varying to S. W. by E. very little wind, rain. *I. N.* 41°.
21	27	44	149	48	149	42	—		—		17	28	1	S. S. W. very little wind, fair. Saw many birds.
22	28	7	151	21	—		—		8	57	17	28	0	A calm, rain.
23	28	4	151	42	150	51	—		—		17 ½	28	2	S. S. W. varying to N. E. by E. very little wind, rain.
24	27	46	153	42	152	51	—		10	14	17 ½	28	1	N. varying to the S by E. heavy g. rain.
25	27	27	153	56	—		—		—		16 ¾	28	2	N. very little wind, fair. *I. N.* 40°.
26	27	24	154	41	153	57	155	14	10	11	17	28	2	N. N. W. fair, a calm. Saw a number of ſea-ſwallows.
27	27	0	155	17 Lon. cur. by the obſ. of diſt.	—		—		—		18 ½	28	2	S. S. E. fr. g. rain.
28	26	52	158	38	—		—		9	18	19 ½	28	1	S. S. E. fr. g. ſqually w. cl.
29	27	9	159	11	157	23	—		—		18	28	1	S. S. W. ſt. rain.

N. B. The Weſt longitude of Monterey according to all the diſtances taken along the coaſt, and referred to this port by the time-piece No. 19, is 124 deg. 3 min.

Oct. Nov. Dec. 1785.	Lat. Nor.		Long. computed Weſt.		Long. W. by the Time Piece, No. 19.	Long. W. by the Dif. of the Mn. from the Sun.	Declination of the Needle E.		Ther.	Barom.		Winds; State of the Sky; Remarks.
	D.	M.	D.	M.	D. M.	D. M.	D.	M.	D.	P.	L.	
O.30	26	20	159	4	157 52	—	—		17 ½	28	0	W.S.W. l. br. fair. *I. N.* 37°.
31	26	27	159	23	—	—	—		18 ½	28	2	E. S. E. very little wind, fair.
N. 1	25	40	160	50	—	—	9	20	18	28	3	E. S. E. fr. g. fair.
2	24	30	163	5	161 0	—	—		18 ½	28	2	E. fr. g. fair. *I. N.* 36°.
3	24	4	165	2	—	—	—		20	28	2	E. varying to the S. E. freſh g. Saw many birds.
4	23	29	166	38	164 40	—	9	1	20	28	2	E. guſts of wind. Saw ſome birds. At 5, P. M. ſaw in the W. an iſl. to which the name of Neckar was given. *I. N.* 34°.
5	23	35	167	25	165 40	—	9	37	20	28	2	E. N. E. freſh g. At noon, Neckar iſland bore E. 8°. N. at 4 leagues diſtance. *I. N.* 34°.
6	23	38	168	39	166 47	—	9	36	20	28	2	E. N. E. fr. g. fair. At half paſt one A. M. ſaw breakers very near us, bearing from N. to S. W. by W. at noon, a ſmall iſland at the N. W. point of the breakers, bore N. diſtant about 2 leagues.
7	23	33	169	20	—	—	8	57	19 ½	28	1	A calm, fair. Saw many birds.
8	22	52	170	28	—	—	—		17	28	1	N. Squally w. cl.
9	21	31	172	32	—	—	8	38	15	28	1	N. N. W. ſqually, cl.
10	21	11	174	22	173 58	—	—		16	28	2	N. fr. g. cl.
11	21	7	175	33	175 19	176 47	—		17	28	1	W. l. br. fair.
12	21	13	175	59	175 58	177 27	8	47	19 ½	28	0	S. S. W. fr. g. fair.
13	21	8	177	53	—	—	9	30	18 ½	27	11	W. freſh g. rain.
14	20	47	178	14	176 50	—	10	6	19	28	0	W. N. W. l. br. miſty.
15	20	31	178	32	177 15	178 44	—		19 ½	28	1	W. N. W. l. br. fair.
			Long. E.		Long. E.	Long. E.						
16	20	13	179	27	179 6	—	12	9	19	28	2	N. E. ſqually, cl.
17	20	6	177	45	179 13	—	—		19 ½	28	2	N. l. br. fair.
18	19	54	176	51	178 35	—	12	12	20	28	2	N. N. W. l. br. fair.
19	19	28	176	12	178 0	—	13	0	20	28	2	N. W. fr. g. cl.
20	19	36	175	15	176 56	—	12	14	20 ½	28	2	N. W. varying to the N. E. l. br. fair.
21	19	57	174	18	176 4	—	11	27	20	28	2	S. l. br. fair.
22	20	8	173	36	175 11	—	12	14	21	28	1	W. N. W. freſh g. miſty.
23	19	30	172	42	174 11	—	11	52	19	28	1	Do.
24	19	41	172	3	—	—	12	30	20	28	1	S. S. W. freſh g. cl. heavy ſea.
25	20	39	171	2	172 32	—	12	27	21	28	1	W. S. W. ſqually, heavy g. cl.
26	20	29	169	58	171 30	170 5	13	24	21 ½	28	2	N. freſh g. cl.
27	20	44	168	18	170 1	168 42	12	36	20	28	2	N. E. guſts of wind, cl.
28	20	18	166	38	168 9	166 47	11	42	19	28	3	E. N. E. l. br. fair.
29	20	39	165	4	166 28	164 54	12	12	19	28	2	E. S. E. l. br. fair.
30	20	26	163	41	165 2	—	10	35	19 ½	28	2	E. S. E. l. br. fair.
D. 1	20	51	163	1	164 25	—	12	34	19 ½	28	1	S. S. W. little wind, fair.
2	21	34	162	28	—	—	12	32	20 ½	28	1	W. l. br. miſty.
3	20	47	162	1	—	—	—		19	28	1	W. N. W. heavy g. ſqually, r.
4	20	46	160	24	161 54	—	9	59	19 ½	28	2	N. freſh g. miſty.
5	20	59	158	19	159 50	—	10	44	19 ½	28	2	N. E. fr. g. fair, heavy ſea.
6	20	58	156	24	158 5	—	11	18	19 ½	28	2	E. varying to the S. E. fr. g. fr.
7	21	23	156	54	—	—	—		18 ½	28	1	S. W. very little wind, miſty.
8	21	19	154	42	155 51	—	9	14	18 ½	28	2	N. E. freſh g. miſty.
9	20	49	152	40	153 36	—	8	24	18	28	3	E. N. E. freſh g. cl.
10	20	57	150	49	—	—	8	0	19	28	3	E. fr. g. fair.
11	20	46	148	58	150 5	148 34	7	13	19 ½	28	3	E. S. E. freſh g. fair.
12	20	28	147	05	147 05	146 33	5	49	20	28	2	Do.
13	20	21	145	55	146 47	—	—		20 ½	28	2	S. W. very little wind, miſty.

Dec. & Jan. 1786, 1787.	at. Nor.	Long. computed aft.	Long. E. by the Time Piece, No. 19.	Long. by the Diſt. of the Mn. from the Sun.	Declina. tion of the Needle E.	Ther.	Barom.	Winds, State of the Sky; Remarks.
	D. M	D. M.	D. M.	D. M.	D. M.	D.	P. L.	
D. 14	20 15	144 33	145 16	—	—	19	28 2	N. E. heavy g. ſqually, cl. At 1 o'clock at noon ſaw Aſſumption iſl. S. W. ¼ W. at about 10 leagues diſtant.
15	19 43	144 3	144 46	—	6 14	19 ½	28 2	N. E: fr. g. cl. At noon, Aſſumption iſland bore E. 13° N. diſtance about two thirds of a league; the Mangs iſlands bore N. 30° W. at 6 leagues diſtance.
16	20 2	141 51	143 21	—	—	20	28 2	E. N. E. fr. g. fair.
17	19 53	140 38	142 4	—	5 33	19 ¼	28 2	E. l. br. fair.
18	20 2	139 34	140 58	—	4 58	20 ¼	28 1	W. N. W. very little wind, miſty.
19	19 49	139 2	140 28	—	5 1	20	28 1	N. W. very little wind, cl.
20	19 39	137 53	138 55	—	4 7	18 ½	28 2	N. W. l. br. fair. Direction of the ſurge or waves from the North.
21	19 36	136 16	137 37	—	3 1	17 ½	28 2	N. N. E. fr. g. fair.
22	19 58	134 43	136 19	—	3 0	19	28 2	E. N. E. fr. g. fair.
23	20 8	133 7	—	—	2 11	19	28 3	N. E. fr. g. fair.
24	20 41	130 26	—	—	—	18 ½	28 3	N. E. heavy gale, fair.
25	20 34	128 26	129 48	127 43	1 63	18	28 3	E. varying to the N. fr. g. fair.
26	20 23	125 32	—	—	0 45 Weſt.	16	28 4	N. N. E. heavy g. cl.
27	21 13	128 25	125 4	123 21	0 33	14	28 4	E. freſh g. miſty, rain.
28	21 8	121 32	122 48	120 57	0 41	16 ½	28 4	E. freſh g. guſts of w. cl.
29	21 15	120 40	121 43	119 44	0 12	17 ½	28 3	E. N. E. fr. g. fair. At noon the moſt northerly of the Baſhee iſlands, bore S. 4° W. diſtant about 3 leagues.
30	21 19	118 40	120 25	—	0 23	18 ½	28 34	E. varying to the N. N. E. freſh g. cl. w. At ſun-riſe ſaw one of the Baſhee iſlands. E. 34° S.
31	22 20	116 19	—	—	—	17	28 1	N. N. E. heavy g. ſqually, miſty.
1787 J. 1	22 19	113 54	115 55	—	0 30	14 ½	28 4	N. N. E. and N. E. heavy g. cl.
2	22 10	112 29	—	—	—	12	28 4	E. N. E. fr. g. cl. At 5 o'clock, A. M. ſaw the Piedra-Blanca, to the N. N. N. E. diſtant 2 leagues. At noon, ſaw a number of iſlands; the great Lamma bore S. 65° W. at 5 leagues diſtance; at 7 P. M. anchored in 44 fathom, bottom muddy, at the diſtance of 12 leagues from Macao, which bore W. 1° S.
3	At Macao till Feb. 5th.	—	—	—	—	12 ½	28 4	N. freſh g. ſqualls. At one P. M. anchored in 5 ½ fat. bottom muddy, about one league and a half from Macao, which bore W. 1° S.
6	—	—	—	—	—	—	—	N. N. E. freſh g. varying at ½ paſt 11 to the N.
7	—	—	—	—	—	—	—	N. E. freſh g. fr.
8	—	—	—	—	—	—	—	N. E. freſh g.
	—	—	—	—	—	—	—	*Here the date is changed to the E. of the Meridian of Paris.*
9	—	—	—	—	—	—	—	E. little wind, fr.

Jan. Feb. 1787.	Latitude North.	Long. computed East.	Long. E. by the Time Piece, No. 19.	Long. E. by the Dif. of the M. from the Sun.	Declination of the Needle W.	Ther.	Barom.	Winds; State of the Sky; Remarks.
	D. M.	D. M.	D. M.	D. M.	D. M.	D.	P. L.	
J. 10	—	—	—	—	—	—	—	E. N. E. fr. g. fair.
11	—	—	—	—	—	—	—	E. fr. g. fair.
12	—	—	—	—	—	—	—	N. E. fr. g. fair.
13	—	—	—	—	—	—	—	E. N. E. fr. g. fair.
14	—	—	—	—	—	—	—	N. E. l. br. misty.
15	—	—	—	—	—	—	—	N. E. squally, misty.
16	—	—	—	—	—	—	—	N. E. fr. g. misty.
17	—	—	—	—	—	—	—	N. N. E. heavy g. misty.
18	—	—	—	—	—	—	—	N. E. fr. g. fair.
19	—	—	—	—	—	—	—	N. N. E. fr. g. fair.
20	—	—	—	—	—	—	—	N. N. E. heavy g. fair.
21	—	—	—	—	—	—	—	N. heavy g. fair.
22	—	—	—	—	—	—	—	N. N. E. fr. g. fair.
23	—	—	—	—	—	—	—	Do.
24	—	—	—	—	—	—	—	A calm, rain.
25	—	—	—	—	—	—	—	N. N. E. fr. g. fair.
26	—	—	—	—	—	—	—	E. l. br. fair.
27	—	—	—	—	—	—	—	N. N. E. fr. g. fair.
28	—	—	—	—	—	—	—	N. E. l. br. fair.
29	—	—	—	—	—	—	—	Do.
30	—	—	—	—	—	—	—	E. N. E. l. br. fair.
31	—	—	—	—	—	—	—	N. N. E. l. br. misty.
F. 1	—	—	—	—	—	—	—	N. l. br. misty.
2	—	—	—	—	—	—	—	Do.
3	—	—	—	—	—	—	—	N. E. fr. g. misty.
4	—	—	—	—	—	—	—	N. l. br. fair.
5	21 60	111 39	—	—	—	12	28 1	N. fr. g. Sailed from Macao at 7 A. M.; at noon, the greateſt of the Ladrone iſlands bore N. 32° W.
6	21 59	112 26	—	—	0 32	11 ½	28 1	N. fr. g. fair.
7	22 6	112 39	—	—	—	13 ¼	28 1	N. E. fr. g. fair.
8	21 36	112 50	—	—	—	16	28 2	N. E. fr. g. misty.
9	20 55	113 27	—	—	0 15	17	28 2	E. N. E. fr. g. fair.
10	19 57	114 45	—	—	—	18	28 2	N. N. E. squally, cl.
11	18 52	115 41	—	—	0 50	18 ½	28 2	N. E. fr. g. fair.
12	18 31	115 57	—	—	—	20 ¼	28 2	Do.
13	18 15	116 27	—	—	—	21	28 1	E. N. E. fr. g. fair.
14	18 11	117 20	—	—	—	21 ½	28 1	E. S. E. little wind, fair.
15	18 15	117 24	—	—	0 36	22	28 1	S. S. E. very little wind, fair.
16	17 54	118 0	—	—	0 2	22	28 0	W. S. W. very little wind, fair. At noon the iſland of Bantam bore E. 37° S. at 6 leagues diſtance.
17	17 40	117 52	—	—	—	21	28 0	S. W. l. br. fair. At noon the iſle of Bantam bore E. 19° S. at 5 leagues diſtance.
18	18 1	117 41	118 16	—	—	28	28 1	W. S. W. very little wind, fair. Bantam iſle bore E. 33° S.
19	17 40	117 54	118 1	—	—	21	28 1	N. fr. g. fair. At noon the iſle Bantam bore S. 57° E.
20	15 44	117 28	—	—	—	21 ½	28 2	E. fr. g. fair. At noon the point Capones bore N. 75° E.
21	14 30	117 25	—	—	—	22 ½	28 2	E. l. br. fair. The point Capones bore N. 75° E.
22	14 30	117 52	—	—	—	21 ⅔	28 1	N. E. fr. g. Point Mirabella bore S. 82° E.; the middle part of the iſland Mirabella S. 88° E.

Feb. Mar. 1787.	Lat. North.	Long. computed East.	Long. E. by the Time-Piece, No. 19.	Long. E. by the Dif. of the M. from the Sun.	Declination of the Needle W.	Ther.	Barom.	Winds; State of the Sky; Remarks.
	D. M.	D. M.	D. M.	D. M.	D. M.	D.	P. L.	
F. 23	14 23	118 13	—	—	—	22	28 2	E. l. br. fr. The Porcos bore N. 52° E. and the Moha. N. 87° E. At half past 5 P. M. anchored in the port of Mirabella. Wind the same, till the 24th at noon.
24	—	—	—	—	—	—	—	E. N. E. fresh g.
25	—	—	—	—	—	21 ½	28 1	N. E. fresh g. fr. sailed at 8 A. M. At 6 P. M. anchored in the Bay of Manilla.
26	—	—	—	—	—	23	28 1	E. N. E. l. br. stood off and on for port Cavite. The Moha bore S. 5° E. Sailed at 5, A. M. At noon, port Cavite bore E. 8° N. At 7 P. M. anchored in a part of Cavite, N. 65° W. in 11 fathom, bottom muddy.
27	—	—	118 18 At the observatory in Cavite.	—	—	—	—	N. N. E. varying to the E. N. E. fresh g. fr. At 5, A. M. set sail, and at 8. anchored in the port of Cavite, two cables length distance from land. Here we remained till Ap. 11.
28	—	—	—	—	—	—	—	E. N. E. fresh g. fr. The fort of Cavite bore N. ½ N. E. we anchored in 3 ½ fathom, high water.
M. 1	—	—	—	—	—	—	—	A calm, fair.
2	—	—	—	—	—	—	—	N. fresh g. fr.
3	—	—	—	—	—	—	—	N. N. E. fresh g. fr.
4	—	—	—	—	—	—	—	N. E. fresh g. fr.
5	—	—	—	—	—	—	—	Do.
6	—	—	—	—	—	—	—	E. N. E. fresh g. fr.
7	—	—	—	—	—	—	—	N. E. fr. g. fair.
8	—	—	—	—	—	24	28 1	Do
9	—	—	—	—	—	24	28 1	E. N. E. fr. g. fair.
10	—	—	—	—	—	—	—	N. E. fr. g. fair.
11	—	—	—	—	—	—	—	Do.
12	—	—	—	—	—	—	—	E N. E. fr. g. fair. Shifted anchor in the day, and anchored in 4 fathom, bottom muddy. the fort of Cavite bore N. 16° E.
13	—	—	—	—	—	—	—	E. N. E. fr. g. fair.
14	—	—	—	—	—	—	—	N. E. fr. g. fair.
15	—	—	—	—	—	—	—	N. fr. g. fr.
16	—	—	—	—	—	—	—	N. N. E. fr, g. fr.
17	—	—	—	—	—	—	—	E. N. E. varying to the N. fr. g. fair.
18	—	—	—	—	—	—	—	E. l. breeze, fair.
19	—	—	—	—	—	—	—	E. N. E. fr. g. fair.
20	—	—	—	—	—	—	—	N. N. E. fr. g. fair.
21	—	—	—	—	—	—	—	Do.
22	—	—	—	—	—	—	—	N. E. fr. g. fair.
23	—	—	—	—	—	—	—	Do.
24	—	—	—	—	—	—	—	E N. E. fr. g. fair.
25	—	—	—	—	—	—	—	N. E. fr. g. fair.
26	—	—	—	—	—	—	—	Do.

March & April 1787.	Latitude North.	Long. compured East.	Long. E. by the Time Piece. No. 19.	Long. E. by the Dif. of the M. from the Sun.	Declination of the Needle W.	Ther.	Barom.	Winds; State of the Sky; Remarks.
	D. M.	D. M.	D. M.	D. M.	D. M.	D.	P. L.	
M 27	—	—	—	—	—	—	—	N. fr. g. fair.
28	—	—	—	—	0 33	—	—	N. N. W. fr. g. fair. *I.N.* 14°.
29	—	—	—	—	—	—	—	N. E. fr. g. fair.
30	—	—	—	—	—	—	—	E. N. E. fr. g. fair.
31	—	—	—	—	—	—	—	Ditto.
A. 1	—	—	—	—	—	—	—	Ditto.
2	—	—	—	—	—	—	—	N. E. fr. g. fair.
3	—	—	—	—	—	—	—	E. N. E. fr. g. fair.
4	—	—	—	—	—	—	—	N. E fr. g. fair.
5	—	—	—	—	—	—	—	Ditto.
6	—	—	—	—	—	—	—	Ditto.
7	—	—	—	—	—	—	—	Ditto.
8	—	—	—	—	—	—	—	N. E. fr. g. Towed the ship about 3 cables length N. E. ¼ E. The fort of Cavite bore N. 60° E.
9	—	—	—	—	—	—	—	N. E. fr. g. Towed the ship N. ¾ small cable's length, (grelins;) fort Cavite bore N. 88° E.
10	—	—	—	—	—	—	—	N. E. fr. g. fair. Made preparations for sailing.
11	14 24	—	117 58	—	—	21	28 2	N. E. fr. g. fair. Set sail at noon. Fort Cavite bore N. 90° E. at ⅓ league distance.
12	15 42	117 36	—	—	—	20 ⅔	28 2	W. N. W. very little wind, fair. The N. point of the island of Two Sisters bore N. 46° E. distant a league.
13	16 23	117 2	117 20	—	—	21	28 3	N. I. br. fair. Point Bolmac bore E. 27° N.
14	16 47	117 9	117 42	—	—	21	28 1	S. S. E. a calm. The most northerly land in sight bore S. 63° E.
15	17 1	117 7	117 41	—	—	20 ⅙	28 1	A calm, fair.
16	17 28	117 9	118 0	—	E.	21	28 2	N. I. br. At noon a calm.
17	18 9	116 59	117 44	—	—	21	28 2	N. N. W. I. br. fair.
18	19 28	117 0	117 38	—	—	21	28 1	E. N. E. I. br. fair.
19	20 59	117 39	117 39	—	—	21 ½	28 1	E. I. br. fair.
20	21 24	117 47	117 20	—	—	18	28 1	N. N. E. very little wind, fair.
21	21 38	117 17	—	—	—	17 ¼	28 3	E. I. br. fair.
22	22 2	117 13	117 14	—	—	16 ½	28 3	N. N. E. I. br. fair.
23	22 2	117 38	—	—	—	16 ½	28 3	N. I. br. fair.
24	22 24	118 7	118 1	117 58	—	16 ½	28 3	N. N. W. very little wind, fair.
25	22 47	117 16	117 7	—	—	16 ½	28 3	N. N. E. fr. g. fair.
26	22 56	116 45	116 39	—	—	16	28 5	N. N. E. fr. g. fair. For several days before, had sailed over a bank, where we sounded from 22 to 12 fath. bottom a rocky sand.
27	22 32	117 42	117 59	118 16	—	18	28 5	N. N. W. very little wind, fair. Port Zealand bore E. 30° S. distant 3 leagues. At 4 P. M. anchored in 17 fathom, bottom muddy.
28	22 52	117 49	117 42	—	—	18	28 5	N. N. W. very little wind. Sailed at 4 A. M. Port Zealand bore S. 35° E. distant 4 leagues. At noon a calm. At 7 P. M. anchored in 37 fathom, bottom muddy. Set sail, the wind at N. N. E.

April, 1787.	Latitude North.	Long. accounted East.	Long. E. by the Time Piece, No. 19.	Long. E. by the Dist. of the M. from the Sun.	Declination of the Needle East.	Ther.	Barom.	Winds; State of the Sky; Remarks.
	D. M.	D. M.	D. M.	D. M.	D. M.	D.	P. L.	
1.29	13 24	—	117 45	—	—	—	—	N.N.E. heavy g. squally w. cl.
30	22 9	—	117 55	—	—	—	—	N. E. l. br. fr. At 6 P. M. the most southerly of the islands Pescadores bore N. 64° W. distant about 2 l.
M. 1	21 43	—	118 19	—	—	—	—	E. S. E. l. br. fr. The island Lamay bore N. 38° E. distant 6 leagues.
2	21 44	—	119 22	—	—	—	—	S. E. varying to the N. by E. l. br. fl. and r. At noon, the isle of Botol, or Tabaco-xima bore N. 7° W. distant 5 leagues.
3	21 57	Lat. & Lo. of the E. point of the great isl. Botol, or Tabaco-xima.	119 29	—	—	20	28 3	N. E. l. br. fl. The island Botol bore N. 8° W. distant 3 leagues. At 6 P. M. Botol bore N. 47° W. distant 1 league.
	21 45	119 03	119 29					
4	22 14	120 11	120 13	—	—	20	28 1	N. E. varying to the E. fr. g. fr.
5	22 40	120 29	120 37	—	—	19	28 2	E. S. E. very little wind, fair.
6	24 28	Lat. & Lo. of the N. point of the isl. Kumi.	120 49	—	—	19½	28 1	S. E. little wind, fair. At noon the N. E. point of the isle of Kumi, bore E. 14° S. and the S. E. point bore S. 28° E. distant two thirds of a league.
	24 30	120 32	120 47					
	25 44	Lat. & Lo. of South Island.	121 14					S. E. fr. g. fair. At 8 A. M. the island Hoapinfu, or South Island, was in the same bearing as North island, N. 48° E. Our distance from the former was two thirds of a league, and from the latter 6 leagues. At noon, the island Hoapinfu bore S. 20° W. at 8 leagues distance, and the North island bore S. 22° E. at 4 leagues distance.
7	25 55	Lat. & Lo. of North Island.	121 27	—	0 53	19 ⅓	28 1	
	26 3	121 2	121 22					
8	27 7	121 6	121 18	—	—	19½	27 11	S. S. W. fr. g. fair.
9	27 43	120 30	121 15	—	1 37	16	27 11	S. S. W. varying to N. N. E. fr. g.
10	28 19	120 58	—	—	1 39	16	28 0	S. S. W. l. br. Foggy. Sounded in 55 and 50 fathom, bottom sandy.
11	28 36	121 9	—	—	—	15	28 0	S. S. W. varying to the W. N. W. l. br. fr. very foggy w. sounded in 55 and 45 fathom, bottom muddy.
12	28 41	121 10	—	—	—	14	28 0	S. S. E. very little wind, foggy. At ½ past 6, P. M. anchored in 45 fathom, bottom muddy.
13	29 27	121 16	—	—	—	15	27 11	W. S. W. l. br. foggy. Sounded in 45 and 50 fathom, bottom muddy. At ½ P. M. anchored in 42 fathom, bottom muddy.
14	29 46	121 5	121 59	—	—	14	28 0	S. S. W. very little wind, still, foggy. At 1 P. M. set sail. At 10, P. M. anchored in 39 fathom, bottom muddy, very th. fog.

May, 1787.	Lat. Nor.	Long. computed East.	Long. E. by the Time-Piece, No. 19.	Long. E. by the Diſt. of the M. from the Sun.	Declination of the Needle E.	Ther.	Barom.	Winds; State of the Sky; Remarks.
	D. M.	D. M.	D. M.	D. M.	D. M.	D.	P. L.	
M 15	30 1	121 56	—	—	—	13 ¼	28 0	S. S. W. l. br. At 10 A.M. ſet ſail, wd. at E.N.E. l. br. fair.
16	30 29	121 47	—	—	—	13 ¼	28 0	E.N.E. l. br. miſty. Sounded in from 45 to 24 fathom, bottom muddy.
17	30 47	121 46	—	—	—	12	28 0	E N.E. verylittle wd. foggy. Sounded in 36 and 40 fath.
18	31 15	122 5	121 42	—	—	12 ½	28 0	E. very little wind. Sounded in 36 and 25 fathom, bottom ſandy. At ½ paſt 2 A. M. anchored in 25 fathom. At 10 ſet ſail; at noon, the wind at E. very dead, miſty. At ½ paſt 8 P. M. anchored in 32 fathom, bottom ſandy.
19	31 47	122 4	122 0	—	—	12 ½	28 0	E. very little wind. Set ſail at 6 A.M. wind at E. fr.g. miſty. At ½ paſt 6 P. M. anchored in 25 fathom, bottom ſandy. At 6, ſet ſail, l. airs at N. the current making 3 knots per hour.
20	32 8	122 10	—	—	—	11 ½	27 11	N. very little wind, foggy.
21	32 34	123 45	123 50	—	—	10 ½	27 11	N.N.W. fr. g. cl. Sounded in 36 and 44 fathom.
22	32 59	124 16	124 21	124 6	—	11 ½	28 0	W.S.W. l. br. At noon the W. point of iſle Quelpaert bore N. 16° W. diſtant 4 leagues. *I. N.* 45°.
23	33 40	125 13	125 27	—	—	13 ½	28 1	S.W. little wind, fair. The moſt ſoutherly iſlds. in ſight bore N. 14°; the moſt weſterly N. 9° W. diſt. 5 leag.
24	34 23	126 7	126 27	—	—	13	27 10	N. l. br. fair; a calm ſea. The coaſt of Corea, the moſt ſoutherly in view, bore W. 35° N. the moſt northerly N. 27° E. at 3 leagues diſt.
25	34 31	126 46	126 48	—	1 45	12	17 11	E. N. E. little wind, fair. The coaſt of Corea the moſt northerly in view bore N. 20° E. Ran along this coaſt at 2 leagues diſtance.
26	35 29	127 25	127 35	127 12	—	12 ½	27 14	S. W. fr. g. fair. The moſt northerly point of Corea bore N. 20° W. diſtant 2 leagues. Sounded in 75 fathom. *I. N.* 44°.
27	36 23	128 7	—	—	—	12	27 9	N. N. E. l. br. ſt. a fog prevented us from ſeeing land.
28	36 41	128 17	128 11	—	1 54	11	27 11	N.W. l. br. miſty. The moſt northerly land of Corea in ſight bore N. 52° W. diſtant 8 leagues. Veered ſhip, and left the Cape on the *E.* to explore the iſlands of Japan. At 3 o'clock P. M. ſaw an iſland bearing N. 15° E. diſ. 15 leag. At noon the middle of this iſl called iſle Dagelet bore N. 17° E. diſtant 4 leagues. *I. N.* 45°.

May, June, 1787.	Lat. Nor.	Long. computed East.	Long. E. by the Time-Piece, No. 19.	Long. E. by the Dif. of the M. from the Sun.	Declination of the Needle E.	Ther.	Barom.	Winds; State of the Sky; Remarks.
	D. M.	D. M	D. M.	D. M.	D. M.	D.	P. I.	
M 29	37 9	128 42	128 59	⊥	2 11	11	28 0	S fr. g. fair.
	37 25	Lat. of S. point of the isle Dageiet.	129 2	Long. of S. point of the isle Dageiet.	—	—	—	
30	38 12	129 47	129 45	—	1 44	12	28 1	S. S. E. fr. g. fair. At 6 A. M. loft fight of Dageiet iſland.
31	38 22	130 34	130 41	—	—	11 ½	28 1	S. S. E. fr. g. fair.
J. 1	38 12	131 27	131 35	—	—	12 ½	28 1	S. S. E. l. br. fair.
2	37 38	132 10	132 13	—	0 36	13 ½	28 0	S varying to the N. E. l. br. fr.
3	37 17	132 34	132 32	—	0 20	12 ½	28 1	N. E. varying to the S. E. l. br. foggy.
4	37 13	133 17	—	—	—	13	27 11	S. little wind, foggy.
5	38 7	133 32	133 38	—	—	12	28 0	S. l. br. foggy. *I. N.* 47°.
6	37 40	133 33	134 49	—	—	13	28 0	S. W. fr. g. miſty. At 10 ſaw the Japan iſlands; at noon the moſt northerly point bore E. 9° S. Ran along the coaſt of Japan, and paſſed to the E. of the iſl. Jootſima, which bore at 4 o'clock, E. and W. the point of the ſame name bore S. 66° E.
	37 51	Lat. of the point of Jootſima.	135 20	Long. of the point of Jootſima.				
	37 36	Lat. of an iſland E. of that point.	135 14	Long. of an iſland E. of that point.				
	37 18	Lat. of the moſt ſouthern point in view of Japan.	135 5	Long. of the moſt ſouthern point in view of Japan.				
7	38 28	134 40	134 55	—	—	11	28 1	S. E. l. br. miſty.
8	39 20	133 31	133 39	—	0 7 West.	13 ½	28 1	S. S. W. freſh g. foggy.
9	40 4	132 4	—	—	0 35	10	27 7	S. S. W. fr. g. ſqually, foggy, with much rain.
10	40 49	131 55	131 40	130 54	0 3	10	27 7	S. W. little wind foggy. At 10, A. M. ſaw the North coaſt of Corea, in the N. At noon, were diſtant from it 12 leagues. *I. N.* 47°.
11	41 55	131 48	131 45	131 6	1 6 East.	9 ½	27 7	S. S. W. varying to the W. fr. g. *I. N.* 48°.
12	42 35	132 15	132 23	—	0 19	7	27 8	N. E. l. br. foggy. At noon the moſt northerly land in ſight bore N. 29° E. and the moſt weſterly, N. 65° W at 5 leagues diſtance.
13	42 49	132 43	132 41	—	2 33	8	28 0	S. W. little wind, fair. At noon, the land which bore N. was diſtant 2 leagues. Sounded at that dif. in 120 fat. bot. muddy *I. N.* 53°.
14	43 31	133 45	133 56	—	—	8	28 1	S. S. W. l. br. fair. Ran along the coaſt of Tartary, at the diſtance of 2 or 3 leagues.
15	43 53	134 21	—	—	—	9	28 0	S. S. E. l. br. foggy. Always in ſight of land *I. N.* 55°.
16	43 57	134 33	134 28	—	—	8	27 11	S. S. W. little wind foggy.
17	44 12	134 32	—	—	—	7 ½	27 10	E. very little wind, foggy at intervals. *I. N.* 55°.
18	44 10	134 47	—	—	—	8	27 9	S. S. W. l. br. very thick fog.
19	44 30	134 52	135 13	—	—	8	27 10	S. S. W. fr. g. foggy.
20	44 44	134 59	135 21	135 5	—	7 ½	27 9	N. E. little wind, fr. Table Mount bore N. 8° W. at 4 leagues diſtance, the neareſt land.

June, July, 1787	Latitude North.	Long. computed East.	Long. E. by the Time Piece, No. 19.	Long. E. by the Dif. of the M. from the Sun.	Declination of the Needle E.	Ther.	Barm.	Winds; State of the Sky; Remarks.
	D. M.	D. M.	D. M.	D. M.	D. M.	●	P. L.	
J. 21	44 46	135 35	—	—	—	8	27 10	S. S. W. very little wind, foggy at intervals. At noon the most northerly land in sight bore N. 20° E. and the nearest land bore N. 29° W.
22	45 1	135 48	135 42	—	—	8	27 10	N. E. fr. g. fair, very thick fog.
23	45 10	135 37	135 39	—	—	6	27 10	A calm, fair. The nearest land bore W. 20° N. at 3 leagues distance.
24	45 13	—	135 9	—	—	—	—	N. E. fr g. fair. Anchor in the bay of Ternay.
25	—	—	—	—	—	8	28 0	A calm, rain in the day.
26	—	—	—	—	—	8	28 0	N. E. l. br. fair.
27	45 13	135 15	135 15	135 15	1 42	6	28 1	W. N. W. l. br. misty. Set sail at 8 A. M. the bay of Ternay bore N. 20° E. at 3 leagues distance.
28	46 8	136 28	136 24	—	1 10	7 ½	28 1	S. fr. fair. The nearest land bore N. 45° W. at 2 leagues distance. *I. N.* 59°.
29	46 51	136 54	137 34	—	—	8 ½	27 11	N. N. E. l. br. overcast.
30	47 20	137 33	137 37	—	—	8	28 0	W. S. W. l. br. foggy at intervals. The nearest land bore N. 55° W. at 3 leagues distance. At 7 P. M. anchored in 36 fathom, bottom muddy, distant 2 leagues from land; foggy.
Jul. 1	47 50	137 34	139 22	—	—	9	28 0	S. l. br.
2	47 52 At anch. in the bay of Suffren.	137 22	—	—	—	—	28 0	At 10 A. M. set sail to approach the shore; wind at S. foggy. At noon anchored in 25 fathom, bottom sand and pebbles, distance from land ¼ of a league.
3	47 51	137 35	—	—	—	8	28 0	N. E. l. br. At 8 A. M. the skiff was sent ashore, but could not land on account of the fog.
4	47 51	137 26	—	—	—	—	27 11	Set sail at 8 A. M. At noon, a calm, foggy; At 6 P. M. anchored in 44 fathom, bottom fine sand.
5	47 43	137 28	137 48	—	—	9	27 10	*I. N.* 62°.
6	48 0	138 20	139 19	—	2 54	10	27 7	Set sail at noon, and ran along the coast of Tartary; the wd. at N. N. E. l. br. foggy.
7	48 31	139 19	139 11	—	2 57 2 33	9 ½	27 8	S. fr. g. At 8 A. M. saw a very elevated peak or summit, and a low point which bore N. 8° E. distant 10 leagues. The nearest point in view of the continent of Tartary bore N. at 9 leagues distance; fair w. At noon the peak called Lamanon bore N. 66° E. at 12 leag. distance; the nearest land of Tartary in sight bore N. 45° W. *I. N.* 63°.

July, 1787.	Lat. Nor.	Long. computed E.	Long. E. by the Time-Piece, No. 19.	Long. E. by the Dif. or the M. fr m the Sun.	Declination of the Needle East.	Ther.	Barom.	Winds; State of the Sky; Remarks.
	D. M.	D. M.	D. M.	D. M.	D. M.	D.	P. L.	
J. 8	48 23	139 32	139 41	—	—	10	27 7	A calm, misty w. At noon the N. point of the island of Segalien was in sight, and bore N. 35° E. the peak of Lamanon bore N. 44° E and the most southerly land E. *I. N.* 63°.
9	48 15	139 38	139 54	—	—	9 ½	27 8	S. S. W. l. br. very thick fog Sounded in 26 fathoms, bottom muddy.
10	48 22	139 53	139 57	—	0 46	10 ½	27 11	S. little wind, foggy.
11	48 4	140 10	140 16	139 20	1 0	10 ½	27 11	S S. W. fr. g. fair. At noon the entrance of a bay bore S. 33° E. distant 6 leagues; and the nearest point of land S. 83° E. at 4 leagues dist. *I. N.* 65°.
12	47 53	140 10	140 25	—	0 47	11	27 11	S. fr. g. fair. The peak of Lamanon bore N. 1° E. the entrance of a bay N. 73° E. at 3 leagues distance, and the nearest land S. 45° E. at 2 leagues distance.
13	47 49	Lat. of the anch. place.	140 29	Long. of the anch. place.	0 47	13	27 10	S. fr. g. fair. At 6 P. M. anchored in Baie de Langle near the island of Segalien, in 14 fathoms; the village bore E. 24° S. at the distance of ¾ of a league.
14	48 13	140 0	—	—	—	13 ⅓	27 10	S. S. W. fr. g. At 5, A. M. sailed from Baie de Langle *I. N.* 63°.
15	48 27	139 29	—	—	—	11	27 10	S fr. g. foggy.
16	48 22	139 9	—	—	—	12	27 11	S. S. W. fr. g. foggy.
17	48 20	138 47	—	—	—	10	27 10	S. fr. g foggy.
18	48 12	138 42	—	—	—	11 ⅓	27 10	S. S. E. l. br. foggy.
19	48 59	—	140 32	—	—	13	27 10	S. S. E. fr. g. overcast. The peak of Lamanon bore N. 65° E at 4 leagues distance. and the nearest point of land N. 80° E. at 2 leagues distance. At 2 o'clock, anchored in Baie d'Estaing. in 20 fathoms, bottom mud-dy, dist. ¾ of a lea. from land.
20	49 26	140 32	140 32	140 16	—	14	27 10	S. l. br. At 4 A. M. set sail, the wind S. fr. g misty. At 7 P. M. anchored in 39 fathoms, bottom fine sand, at 1 league distance from land. *I. N.* 64°.
21	49 53	140 31	—	—	—	13	27 10	S l. br. misty. At 4 A. M. set sail; at noon the nearest land bore N 11° E. distant 2 leagues.
22	50 31	140 26	140 30	—	—	14	27 10	S. l. br. misty. Sounded in from 80 to 45 f. off isle Segalien. At noon the land bore E. 11° N. dist. 2 lea. At ½ past 2, anch in 42 fat. bottom m. at the dist. of 1 ½ l. from land.

July, Aug. 1787.	Latitude North.	Long. computed East.	Long. E. by the Time Piece, No. 19.	Long. E. by the Diff. of the M. from the Sun.	Declination of the Needle East.	Ther.	Barom.	Winds; State of the Sky; Remarks.
	D. M.	D. M.	D. M.	D. M.	D. M.	D.	P. L.	
J. 23	50 52	140 31	140 38	139 59	—	14 ½	27 11	S. almoſt a calm, foggy. At 5 A.M. ſet ſail; a l. br. from the S. fair. Our anchoring place, called Ruiſſeau des Saumons, bore S. 10° E. and the neareſt land E. 22° S. at the diſtance of 1½ league. Sounded in 39, 38, 35, 30, and 29 fathoms, bottom ſandy, till 4 o'clock P. M. At 9, 24 fathoms. At ¼ paſt 9, anchored in 22 fathoms, bottom ſandy.
24	51 29	140 26	140 29	—	° 55	14	28 0	S. l. br. At 3 A.M. ſet ſail; at noon, the neareſt land bore E. 20° N. at 4 leagues diſt. and the moſt northerly land bore N. 6° E. Sounded in 15, 16, 18, 20, and 22 fathoms, as we drew near the middle of the channel of Tartary. At ½ paſt 7 P.M. anchored in 24 fathoms, bottom muddy. *I. N.* 71°.
25	51 29	139 46	139 47	—	—	13	28 0	S. l. br. miſty. At 4 A.M. ſet ſail; foggy, l. br. courſe weſterly. Sounded in 22, 20, and 19 fathoms, till ½ paſt 9, when we came to anchor. At 2 o'clock, ſet ſail, and ſtood to the N. E. running along the ſhore. At ½ paſt 7, ſounded in 19 fathoms, bottom ſandy; anchored, ſame hour, at 2 leagues diſtance from land.
26	51 40 51 44	140 3 140 2	—	—	—	13	28 0	S. S. W. Sailed at 10 A. M and ſtood off and on to get to the ſouthward into deeper water.
27	51 32	140 8	—	—	—	12	28 0	S. S. W. heavy g. rather foggy. Sounded from 8 to 9, 12, 14, 16, 18, and 21 fathoms, bottom muddy. Sounded in 18, 16, 15, 14, 13, and 12 fathoms. At ½ paſt 7, P. M. anchored in Baie de Caſtries, in 11 fathoms, bottom muddy.
28	51 29	139 51	—	—	—	12	28 0	S. S. W. fr. g. fair. Shifted anchor, and anchored in 5½ fathoms, bottom muddy.
29	51 29	139 41	—	—	—	12	27 11	S. very little wind, foggy.
30	—	—	—	—	—	13	27 10	E. S. E. very little wind.
31	—	—	—	—	—	13	27 11	S. S. E. fair. l. br.
A. 1	—	—	—	—	1 50	—	27 11	S. very little wind, fair.
2	—	—	—	—	—	—	—	E. N. E. very little wind, varying to the S. E.

Aug. 1787.	Lat. Nor.		Long. computed East.		Long. E. by the Time Piece, No. 19.		Long. E. by the Diſt. of the Mn. from the Sun.		Declination of the Needle E.		Ther.	Barom.		Winds; State of the Sky; Remarks.
	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	P.	L.	
A. 3	51	19	140	24	140	7	—		1	7	13 ⅓	28	0	S. S. W. varying to the S. S. E. very little wind. At 4 P. M. ſet ſail. At 8 P.M. Cape Cloſtercam bore S. 18° W. Sounded in 12 and 17 fathoms. At noon, the neareſt land bore N. 35° E.
4	50	48	139	27	139	27	—		1	7	14 ½	28	0	S. S. W. varying to the S. S. E. very little wind, fair. Soundings increaſed as we ſteered ſoutherly, to 45 fathoms. At noon the land bore W. 11° N. at 3 leag. diſtance.
5	50	35	139	52	140	16	—		—		10	27	11	S. fr. g. foggy w.
6	50	18	139	53	139	50	—		—		14	27	7	S. fr. g. miſty.
7	50	6	140	7	—		—		1	8	13	27	6	S. S. W. fr. g. heavy ſea, miſty.
8	49	13	139	41	139	28	—		—		15	27	10	S. S. W fr. g. varying to the N. by W. and E. N. E. very little wind, fair. Saw the coaſt of Tartary bearing S. 55° W. and N. 38° E. the peak of Lamanon bore S. 48° E.
9	48	25	140	55	140	1	138	53	1	50	13 ½	27	9	N. heavy g. fair. Peak of Lamanon bore N. 48° E the moſt ſoutherly point in view bore S. 66° E.
10	46	45	140	24	140	11	138	37	1	27	13 ½	27	10	N. heavy g. fair, a large ſea. The middle of iſle Monneron bore S. 29° W. and the peak of Bernizet N. 32° E. At half paſt 7, P. M. anchored in 40 fathoms, bottom ſandy, diſtant 2 leagues from the coaſt; the peak of Langle bore S. 20° W. iſle Monneron N. 55° W. and Cape Crillon E. 18° S.
11	45	57	140	32	140	25	—		1	23	15	27	11	N. heavy g. fair. At 4 A. M. ſet ſail, with a l. w. at N. At ½ paſt 11, a calm. Anchored 2 leagues from point Crillon bearing N. 72° W. the peak of Langle bore S. 30° W. At ½ paſt 12, at noon, ſhifted anchor, when Cape Crillon bore S. 83° E. and the peak of Langle, S. 29° W.
12	45	40	140	48	—		—		—		11	28	0	A calm, fair. At 8 A. M. ſailed and paſſed the ſtrait which ſeparates Jeſſo from Oku-Jeſſo; wind at N. E. l. br. miſty.
13	45	21	140	8	141	13	—		1	37	10 ¼	28	0	S. almoſt a calm, fair. Cape Aniva bore N. 30° E. and the peak of Langle, S. 81° W.
14	47	27	141	43	—		—		2	11	11 ½	28	0	S. E. l. br. fair. At noon Cape Aniva bore N. 9° E. *l. N.* 57°.

Aug. Sept. 1787.	Lat. Nor.		Longitude computed East.		Lonr. E. by the Time-Piece, No. 19.		Lon. E. by the Dif. of the M. from the Sun.		Declination of the Needle E.		Ther.	Barom.		Winds; State of the Sky; Remarks.
	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	P.	L.	
A. 15	46	9	142	44	142	57	—		3	0	12 ½	28	1	E. S. E. l. br. fair. Cape Aniva bore S. 84° W.
16	46	20	143	48	—		—		—		12 ½	28	1	E. S. E. fr. g. misty, foggy. *I. N.* 54°.
17	46	9	144	18	144	11	—		—		12 ½	27	11	E. S. E. varying to the N. E. misty.
18	45	57	144	52	144	58	—		—		12	27	11	N. varying to the S. S. E. by E. very little wind, foggy at intervals. *I. N.* 58°.
19	46	19	146	7	146	21	—		3	32	13	27	9	S. fr. g. misty. Saw Staten Land, or Island, which bore S. 1° E.
20	46	27	148	6	148	9	—		5 5	14 50	13	27	10	S. W. fr. g. cl. Ran along Staten Island.
21	47	10	148	50	148	56	—		—		10 ⅓	27	11	S. E. very little wind, foggy. *I. N.* 57°.
22	47	14	148	47	—		—		5	4	12	28	0	S. l br. varying to the W. S. W. foggy.
23	47	12	148	49	148	9	—		—		13	28	1	S S. W. varying to the S. little wind, very thick fog.
24	47	22	149	24	149	15	—		5	27	10 ⅓	27	11	S. l. br. foggy. One of the islands, Four Brothers, bore S. 2° W. *I. N.* 52°.
25	47	28	149	47	—		—		—		10	27	11	S. S. E. l. br. foggy.
26	47	20	149	48	—		—		—		11	27	10	S. S. E. varying to the N and at noon to the W. very little wind, foggy.
27	47	11	150	3	150	3	—		—		9 ¼	27	11	W. S. W. l. br. At ½ past 8, the fog cleared up; saw the isl. Marakina, bearing from N. 67° E. to S. 6° E.
28	47	7	149	44	149	44	—		4 4	44 49	9 ¼	28	0	S. W. varying to the N. by W. and N. N. E. At noon, almost a calm, overcast: the N. E. point of the island Marakina bore N. 73° E. the S. W. point bore S. 37° E. and one of the islands, Four Brothers, S. 37° W.
29	46	19	149	59	—		—		—		7	28	1	E. varying to the N. E. l br. overcast. Proceeding thro' the strait, of La Bouffole, at 4 A. M. the S. point of Marakina, bore N. 30° E. distant five leagues; foggy.
30	45	57	150	48	151	10	—		—		8	28	1	W. S. W. l. br. overcast
31	46	15	152	18	—		—		—		10 ⅓	28	1	Do. very little wind, foggy.
S. 1	47	3	153	58	—		—		—		12	28	1	S. S. W. heavy g. foggy.
2	48	29	155	38	155	32	—		—		9 ¼	27	11	W. heavy g. foggy.
3	49	16	150	24	156	23	—		6	3	9	28	2	W. N. W. very little wind, foggy.
4	50	23	156	25	156	52	156	23	6	4	10	28	2	S. W. heavy g. cl.
5	50	56	157	17	157	40	157	15	6	53	9 ½	27	11	S. W. fr. g. foggy. At 3 P. M. saw land, part of the peninsula of Kamtschatka.
6	52	26	157	56	157	36	157	14	—		8 ⅓	27	9	W. fr. g. cl. At noon, the volcano bore N. 38° W.

Sept. 1787.	Lat. Nor.		Long. computed East.		Long. E. by the Time Piece, No. 19.		Long. E. by the Dist. of the Mn. from the Sun.		Declina. tion of the Needle E.		Ther.	Barom.	Winds, State of the Sky; Remarks.
	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	P. L.	
S. 7	52	47	156	54	156	57	156	42	—		7 ¾	27 10	N. W. l. br. fair. The entrance of the bay of Avatscha bore N. 56° W. and the volcano N. 5° W. At 7, P. M. anchored in the bay of Avatscha, in 7 fathoms, bottom muddy; the harbour of St. Peter and St. Paul bore N. 44° E. and the volcano, N. 83° E.
8	53	1	—		156	42	—		—		—	—	A calm; at one P. M. a breeze at S. E.
	Anchored at Avatscha from Sept. 8, to 30th.												

Oct. Nov. 1787	Time by the Time Piece, No. 19.		Corrected.		Long. true E.		Latitude North.		Barom.		Ther.		Declination of the Needle E.		Winds; State of the Sky; Remarks.
	D.	M.	D.	M.	D.	M	D.	M.	P.	L.	D.		D.	M.	
O. 1	157	0	—		157	0	51	18	27	5	5	¼	—		W.S.W. fr. g. fair.
2	157	43	—		157	42	49	44	27	10	4	¼	—		Do.
3	157	46	—		157	46	47	57	27	9	5	¾	—		W. fr. g. fair.
4	158	4	—		158	4	46	27	27	8	5	¾	—		N. N. E. heavy g. fair.
5	158	32	0	2	158	50	44	42	27	10	5	½	—		N. W. squally, rain. *I. N.* 43°.
6	159	40	0	4	159	36	43	16	28	3	8		10	54	W. S. W. do.
7	—		0	6	—		—		28	4	9	¾	—		S. do.
8	161	55	0	8	161	47	43	17	28	0	12		—		S. W. do. overcast.
9	162	40	0	10	162	30	41	23	28	1	11	½	—		N. W. do.
10	162	41	0	13	162	28	40	26	28	2	11	½	12	33	S. S. E. do. *I. N.* 36°.
11	163	11	0	16	162	55	39	41	27	10	11	½	—		S. E. l. br. overcast.
12	163	35	0	19	163	16	38	46	28	2	12		13	12	N. N. E. l. br. fair.
13	164	38	0	22	164	18	38	46	28	1	12	⅓	11	1	S. little wind, overcast.
14	164	39	0	25	164	14	38	5	28	4	14		—		S. S. W. fr. g. fair. *I. N.* 33°.
15	166	19	0	28	165	51	37	37	28	2	16	⅓	—		Do.
16	168	5	0	31	167	34	37	37	28	1	16	⅔	12	42	S. W. do.
17	170	51	0	34	170	17	37	28	28	0	15		—		N. N. W. heavy gale rain. *I. N.* 29°.
18	172	10	0	37	171	33	37	28	28	2	14		—		E. l. br. fair.
19	173	46	0	40	173	6	37	25	27	10	14	⅓	—		N. N. W. fr. g. fair.
20	176	15	0	42	175	35	37	15	28	4	12	⅓	—		W. do. overcast.
21	178	25	0	45	177	40	37	4	27	9	10	⅓	—		N. W. heavy g. do.
22	179	40	0	48	179	32	37	19	27	10	11		—		S. E. little wind, ft.
23	179	48	0	50	179	22	36	6	28	2	11		—		N. W. fr. g. fair.
	West.				West.										
24	178	20	0	50	179	11	35	45	27	11	16		11	50	S. do. overcast.
25	177	28	0	52	178	20	34	56	28	1	16	⅓	12	0	Do.
26	—		—		—		—		28	0	16	⅓	—		W. S. W. heavy g. rain.
27	175	59	0	53	176	53	32	37	28	0	17		—		W. l. br. fair.
28	175	13	0	54	176	9	31	31	28	1	18		—		N. N. W. heavy g.
29	175	22	0	54	176	16	29	37	28	4	17		—		N. E. fr. g. fair.
30	175	47	0	54	176	41	27	33	28	3	18	½	—		E. do. overcast.
31	176	18	0	54	177	3	—		28	1	20		—		S. gusts of wind, do.
N. 1	174	43	0	55	175	38	26	27	28	1	21		—		S. W. little wind, rain.
2	174	42	0	55	175	37	26	21	28	2	18		12	8	A calm, fair.
3	174	53	0	55	175	42	25	13	28	2	20	½	12	9	E. l. br. overcast.
4	175	3	0	56	175	59	23	40	28	3	20		—		E. N. E. fresh g. do.
5	175	14	0	56	176	10	21	39	28	2	20		—		E. heavy g. do.
6	—		—		—		—		28	2	20		—		E. N. E do. cl.
7	175	5	0	57	176	2	17	54	28	1	20	¼	11	30	Do.
8	175	6	0	57	176	3	16	16	28	2	20		—		Do.
9	175	7	0	57	176	4	14	49	28	1	20	½	—		E. do.
10	175	8	0	57	176	6	12	56	28	1	21		—		Do.
11	—		—		—		—		28	0	21		11	15	Do.
12	—		—		—		—		28	0	20		—		E. S. E. do. rain.
13	—		—		—		—		28	0	21		10	35	Do.
14	174	28	0	59	175	27	7	38	27	11	21		—		E. N. E. fresh g. fr. *I. N.* 10°.
15	—		—		—		—		27	11	20	⅔	9	7	Do. fr. g. rain.
16	—		—		—		4	31	28	0	21		—		E. S. E. do.
17	174	9	1	0	175	9	3	39	28	0	21		—		Do. *I. N.* 4°.
18	174	45	1	1	176	56	3	9	28	0	20	½	8	30	Do.
19	175	20	1	2	176	22	2	4	28	0	21		9	13	Do. fair.
20	175	27	1	2	176	29	0	54	28	0	20	½	9	37	E. N. E. l. br. fair.
							South.								
21	175	32	1	3	176	36	0	34	—		—		10	6	Do.
22	175	7	1	4	176	10	1	48	28	0	20	½	10	44	Do.
23	174	46	1	5	175	50	2	47	28	0	20	½	9	44	N. E. fr. g. fair.
24	174	10	1	6	175	16	3	28	28	0	21		—		N. l. br. fair.
25	173	19	1	7	174	26	3	47	28	0	22		—		N. N. W. little wind, fair. *I. N.* 6°.
26	172	45	1	7	173	53	3	52	27	11	20	¼	9	9	W. N. W. do.
27	172	33	1	8	173	41	4	17	27	11	21	¼	10	7	N. N. E. do.

Nov. Dec. 1787. Jan. 1788.	Long. W. by the Time Piece, No. 19.		Corrected		Longit. true West.		Latitude South.		Barom.		Ther.		Declination of the Needle E.		Winds; State of the Sky; Remarks
	D.	M.	D.	M.	D.	M.	D.	M.	P.	L.	D.		D.	M.	
N. 28	171	52	1	10	173	2	5	25	28	0	22		—		N. fr. g. fair.
29	171	14	1	11	172	24	6	16	28	0	21	½	—		N. N. W. do.
30	—		1	12	—		—		28	0	19		—		W. lt.
D. 1	169	26	1	13	170	39	8	59	27	11	20		—		N. W. heavy g. rain.
2	168	54	1	14	170	9	10	26	27	10	20	¾	—		W. S. W. do. lt.
3	168	51	1	16	170	7	11	34	27	11	19	3	9	53	W. l. br. fair.
4	168	41	1	17	169	58	12	10	27	11	21		8	43	W. N. W. a calm.
5	169	9	1	19	170	27	12	42	28	0	21	¼	8	55	E. S. E. l. br. fair.
6	169	27	1	19	170	47	13	19	28	0	21		8	45	Do.
7	170	6	1	21	171	27	14	7	28	0	20	½	9	42	Do.
8	170	56	1	22	172	19	13	59	28	0	20		9	31	E. l. br fair.
9	171	6	1	24	172	30	14	13	28	0	21		—		E. little wind. *I. N.* 18°.
10	—		—		—		—		28	0	21		—		E. l. br. fair.
11	171	20	1	27	172	47	14	17	28	0	20	½	—		E. N. E. little wind, fair.
12	171	21	1	28	172	49	14	12	28	0	21		9	8	N. E. very little wind, fair.
13	171	28	1	30	172	58	14	7	27	11	21	½	8	27	E. S. E. a calm, do.
14	171	53	1	31	173	24	13	52	27	11	21	½	—		E. N. E. l. br. fair.
15	172	16	1	33	173	49	13	33	28	0	21		—		A calm.
16	172	43	1	34	174	18	13	20	—		—		—		Do.
17	173	14	1	36	174	49	13	24	28	0	21		—		E. N. E. l. br. fair.
18	173	49	1	37	175	26	13	59	28	0	20	¾	—		E. S. E. do.
19	174	8	1	39	175	47	14	22	28	0	21		9	13	Do. very little wind.
20	174	33	1	41	176	14	14	48	28	0	21		—		Do.
21	174	46	1	43	176	29	15	26	28	0	21		10	53	N. E. little wind. fair.
22	174	36	1	44	176	21	—		27	11	21	½	—		N. N. E fr. g. fair.
23	174	30	1	46	176	16	16	3	27	11	21		—		N. N. W. gusts of wind, rain.
24	173	34	1	48	175	22	17	12	27	11	20	¼	11	38	W. N. W. fr. g.
25	173	16	1	50	175	6	18	11	27	11	19		—		N. N. W. l. br. fair.
26	173	30	1	52	175	22	—		28	4	19	½	—		Do.
27	173	52	1	54	175	46	18	35	28	0	19		—		N. cl.
28	174	17	1	56	176	13	18	25	27	11	19		—		Do. rain. *I. N.* 29°.
29	174	55	1	58	176	53	18	43	27	10	18	¾	—		N. N. E. l. br. fair.
30	175	26	2	0	177	26	19	55	27	11	19	½	11	30	N. N. W. fr. g.
31	175	37	2	2	177	39	21	4	27	11	19	½	10	57	N. N. E. l. br.
1788.															
J. 1	175	43	2	4	177	47	21	39	27	11	19	½	11	38	S. S. W. very little wind. *I. N.* 33°.
2	175	43	2	6	177	48	22	26	27	11	19	½	10	50	W. S. W. l. br.
3	175	55	2	8	178	4	22	36	27	11	19		10	27	S. S. W. very little wind. fair. *I. N.* 34°.
4	176	35	2	10	178	45	22	20	28	0	18	½	10	5	Do. l. br. fair.
5	177	38	2	12	179	50	22	41	28	0	19	½	—		N. E. do.
6	—		—		—		23	21	28	0	19		—		Do.
	East.				East.										
7	—		—		—		—		27	11	17	½	—		E. N. E. fr. g. *I. N.* 37°.
8	176	49	2	18	174	31	25	0	28	0	18		—		Do.
9	174	41	2	20	172	21	25	51	28	0	18		—		Do. *I. N.* 39°.
10	172	46	2	22	170	24	26	42	28	0	18		—		N. E. fr. g.
11	171	51	2	24	169	28	28	0	27	11	15		—		N. N. E. fr. g. overcast. *I. N.* 47°.
12	169	47	2	25	167	22	28	57	27	8	16	½	—		W. l. br. fair. *I. N.* 52°.
13	168	32	2	27	166	5	29	1	27	10	16		—		S. E. fr. g. fair.
14	167	11	2	28	164	43	29	7	27	11	16		—		E. S. E. do.
15	165	6	2	30	162	37	29	26	28	1	16	¼	—		E. N. E. do. *I. N.* 50°.
16	163	11	2	31	160	40	30	26	28	1	17	¼	9	5	Do.
17	161	9	2	32	158	38	31	28	28	2	18		9	20	N. E. fr. g. fair. *I. N.* 54°.
18	159	22	2	33	156	49	32	17	28	1	18		10	23	N. N. E. fr. g. fair.
19	157	55	2	33	155	23	32	48	28	2	18		10	7	N. E. do. *I. N.* 55°.
20	155	51	2	34	153	18	33	17	28	3	18		9	32	Do.
21	154	38	2	34	152	4	34	2	28	3	18		9	42	E. N. E. l. br. fair.

Jan. 1788.	Long. E. by the Time-Piece, No. 19.	Corrected.	Long. true E.	Latitude South.	Barom.	Ther.	Declination of the Needle E.	Winds; State of the Sky; Remarks.
	D. M.	D. M.	D. M.	D. M.	P. L.	D.	D. M.	
22	153 60	2 35	151 25	54 9	28 3	18	11 25	A calm, fair. *I. N.* 57°.
23	152 40	2 35	150 5	53 43	28 3	18	14 22	S. E. fr. g. fair.
24	152 44	2 35	150 8	54 9	28 1	17	—	N. N. W. fr. g.

N. B. By a mean taken between many series of distances of the moon from the sun, the error of the time piece, No. 19, was ascertained by the observed longitudes; we afterwards interpolated the variations which the diurnal corrections should undergo, in order to deduce from them the true longitudes.

Here follow the results produced by the observations of distances, or series reduced to a fixed epoch.

	D.	M.	S.
Oct. 6.	0	4	0
Nov. 2.	0	53	0
18.	1	1	8
Dec. 4.	1	16	50
18.	1	37	20
Jan. 4.	2	8	30
16.	2	31	0

According to this series we deduced the true diurnal longitudes, which served us for the true longitude of our arrival at New Holland.

TABLES,

SHEWING THE

COURSE of L'ASTROLABE,

DURING THE YEARS

1785, 1786, and 1787,

FROM THE TIME OF THE SHIP'S SAILING FROM EUROPE TILL ITS ARRIVAL IN KAMTSCHATKA.

Aug. Sept. 1785.	Lat. North.		Long. computed West.		Long. W. by the Time-Piece, No. 18.		Long. W. by the Dis. of the M. from the Sun.		Declination of the Needle W.		Ther. interior observed at noon.	Barom. of Nairn, observed at noon till Aug. 15, excl. & from do. at 9 in the mor. & 3 in af.				Winds; State of the Sky; Remarks.
	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	P.	L.	P.	L.	
A. 7	41	18	14	10	—		—		—		16 9	28	3	—		N.E. moderate br. fair.
8	38	55	15	41	15	12	—		—		17	Do.		—		N. E. and N. N. E. fr. g. misty.
9	36	44	16	34	15	31	—		—		19	28	2	—		N.E. moderate br. fair.
10	34	46	17	4	16	10	15	11	—		19	28	3	—		Do.
11	33	6	17	45	16	39	15	17	—		19	28	2	—		Do
12	32	8	19	20	18	13	—		—		19	28	3	—		N. N. E. and N. little wind, misty.
13	32	42	—		19	11	—		18	18	20	Do.		—		N. E. little wind, fair.
14	—		—		—		—		—		21	28	4	—		N. E. varying to the S. E. by E. a calm, fair.
15	—		—		19	32	—		—		21	At 9. 28	3	28	3	N. E. varying to the E. N. E. and to the S. W. by S. moderate br. misty.
16	—		—		—		—		—		21	Do,		Do.		N.E. moderate br. fair.
17	31	25	19	7	18	4[illegible]	—		17	40	20	28	4	28	4	N.N.E. mod. br.
18	30	17	18	9	—		—		—		20	28	5	28	5	N. E. l. br. fair.
19	28	30	18	29	—		—		—		21	28	4	28	3	N. N. E. moderate br. fair.
20	—		—		—		—		—		19	28	3	Do.		N.E. moderate br. rain.
21	—		—		—		—		—		21	Do.		Do.		N. E. little wind, rain.
22	—		—		—		—		—		22	Do.		Do.		N. varying to the N. E. little wind, hazy.
23	—		—		—		—		—		22	28	4	Do.		N. E. varying to the E. N. E. moderate br. fair.
24	—		—		—		—		16	45	22	Do.		Do.		N.E. moderate br. fair.
25	—		—		—		—		—		21	28	3	Do.		N. E. l. br. fair.
26	—		—		—		—		16	58	22	Do.		Do.		N.E. very little w. fair.
27	—		—		—		18	18	14	32	22	28	4	28	4	E. varying to the E. N. E. fr. g. fair. *I. N.* 58°.
28	—		—		—		—		14	56	22	Do.		Do.		E.N.E. varying to the N. E. fr. g. fair.
29	—		—		—		—		16	7	22	Do.		28	3	N. E. little wind. fair.
30	—		—		—		—		17	5	23	28	3	28	2	N.N E. little wind, fair.
31	27	6	18	52	18	46	—		19	12	22	Do.		Do.		N.E. moderate br. fair.
S. 1	25	9	19	21	19	44	—		15	35	23	28	2	Do.		N. E. varying to the E. l. br fair.
2	23	54	19	48	—		—		—		22	28	3	Do.		N. E. and E. N. E. fr. g. fair.
3	22	11	20	38	20	42	—		14 13	57 38	22	28	2	Do.		N. E. fr. g. foggy.
4	21	20	21	9	21	17	—		—		23	Do.		Do.		N. E. varying to the N. W. by N. little wind, misty.
5	19	33	21	56	22	14	—		—		22	Do.		Do.		N. E. varying to the N. N. E. moderate br. misty.
6	17	37	22	26	22	24	—		12	20	23	Do.		28	1	N. E. moderate br. hazy and stormy.
7	16	19	22	20	22	19	—		12	31	23	Do.		Do.		N. E. l. br. fair.
8	15	44	22	13	—		—		—		25	Do.		Do.		N E. varying to the E. S. E. by E. st.
9	14	57	22	18	22	19	—		11 11	52 40	25	Do.		28	2	S. S. E. varying to the N. N. W. by E. almost a calm, st.
10	14	11	22	14	22	11	22	10	11	8	25	Do.		Do.		N. varying to the E. S. E. by E. l. br. fair. *I. N.* 32°.

Sept. Oct. 1785.	Lat. Nor.		Long. computed West.		Long. W. by the Time Piece, No. 18.		Long. W. by the D. of the M. from the Sun.		Declination of the Needle, W.		Ther. observed at Noon.	Barometer of Naime, observed at 9 in the morning and 3 in the afternoon.		Winds; State of the Sky; Remarks.
	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	At 9. P. L.	At 3. P. L.	
S. 11	13	57	22	27	—		—		11	31	27	28 3	28 2	E. varying to the S. little wind, ſt.
12	13	11	22	20	22	3	—		—		24	Do.	Do.	E.S E. varying to the W. N. W. by S. little wind, ſt.
13	12	12	22	24	21	57	22	5	10	59	22	Do.	Do.	S. varying to the N. N. E. by W. l. br. miſty.
14	11	4	22	24	—		—		10	40	25	28 2	28 1	N. N. E. varying to the N. N. W. by N. l. br. fair.
15	10	8	22	24	21	31	—		10	45	25	Do.	28 2	N. N. W. and N. little wind, miſty.
16	9	10	21	36	19	37	—		—		25	Do.	28 1	N. N. W. varying o the S. W. by W. l. br. miſty.
17	8	31	20	46	18	49	—		11	0	24	Do.	28 2	W. S. W. and S. S. W. moderate br. rain.
18	7	39	20	11	18	42	—		10	58	24	Do.	Do.	S. W. varying to the S. S. W. l. br. fr.
19	7	13	20	6	—		—		—		25	28 3	Do.	W. S. W. varying to the N. by W. little wind, fair.
20	6	10	19	58	18	24	—		—		24	28 2	Do.	N. varying to the W. l. br. miſty.
21	5	13	19	29	17	43	—		—		23	Do.	Do.	N. W. varying to the S. S. W. by W. l. br. miſty.
22	4	37	18	34	16	42	—		—		23	28 3	Do.	W. S. W. and S. W. moderate br. miſty.
23	3	43	18	2	16	11	16	12	—		23	Do.	Do.	N. varying to the W. S. W. by W. l. br. miſty.
24	2	46	17	23	15	0	—		—		24	Do.	Do.	W. S. W. varying to the S. W. little wind, fair.
25	2	20	16	33	14	4	—		—		24	Do.	Do.	S. W. varying to the S. S. E. by S. little w. miſty. *I. N.* 9°.
26	1	41	17	30	15	15	15	7	11	31	23	Do.	Do.	S. and S. S. E. moderate breeze, rain.
27	1	24	18	11	—		—		—		23	28 2	Do.	S. S. W. and S. S. E. do.
28	0	55	19	8	17	1	17	43	—		23	Do.	Do.	S. S. E. and S. E. fr. g. rain.
29	0	11	20	1	18	2	—		—		22	28 3	Do.	S. E. moderate br. miſt.
30	South. 0	41	20	39	18	29	—		9	36	22	Do.	Do.	S. E. l. br. fair. *In. N.* 8°.
O. 1	1	40	21	16	19	0	—		9	55	22	Do.	Do.	S. E. do. *I. N.* 7°.
2	2	52	21	49	19	41	—		9	40	22	Do.	Do.	S. E varying to the E. S. E. l. br. fair *I. N.* 6°.
3	4	22	22	18	20	25	—		8	40	22	Do.	Do.	S. E. and E. S. E. do. *I. N.* 4°.
4	5	42	23	48	20	50	—		8	32	22	Do.	Do.	E. S. E. rain, *I. N.* 2°.
5	6	51	23	10	21	22	—		7	23	21	Do.	Do.	S. E. varying to the E. S. E. l. br. guſts of wind, rain. *I. N.* 2°.
6	8	11	23	37	22	7	—		8	13	22	Do.	Do.	E. and E. S. E. l. br. fair. *I. N.* 3°.

Oct. Nov. 1785.	Latitude South.	Long. computed West.	Long. W. by the Time Piece, No. 18.	Long. W. by the Dif. of the M. from the Sun.	Declination of the Needle West.	Therm. Interior, obſvd at Noon.	Barometer of Nairne obſerved at 9 in the morning and 3 in the afternoon.		Winds; State of the Sky; Remarks.
							At 9.	At 3.	
	D. M.	D. M.	D. M.	D. M.	D. M.	D.	P. L.	P. L.	
O. 7	9 34	24 6	22 42	23 21	6 40	22	28 3	28 2	E. l. br. misty. *I. N.* 7°.
8	11 4	24 29	23 19	24 4	—	22	Do.	Do.	E. S. E. and E. moderate br. fair.
9	12 19	25 0	23 52	24 28	5 49	21	Do.	Do.	E. and E. S. E. l. br. rain. *I. N.* 11°.
10	13 37	25 26	24 3	—	4 43	21	Do.	Do.	E. and E. S. E. moderate br. gusts of w. rain.
11	14 38	25 44	—	26 9	4 43	20	Do.	28 3	E. S. E. and S. E. moderate br. do. *I. N.* 15°.
12	15 52	26 14	25 21	26 60	4 30	20	Do.	Do.	E. S. E. and E. l. br. gusts of wind, rain.
13	17 7	26 58	26 0	—	3 30	19	28 4	Do.	E. and E. S. E. moderate br. fr.
14	18 42	27 43	26 49	—	2 33	19	Do.	Do.	E. and E. N. E. moderate breeze, fair. *I. N.* 23°.
15	20 28	28 28	26 49	—	1 38	21	28 3	Do.	E. and E. N. E. moderate br. fair.
					East.				
16	20 43	30 19	28 53	—	1 0	21	Do.	28 2	N. E. varying to the N. moderate br. fr.
17	20 42	31 11	29 51	—	1 28	22	28 1	28 1	N. varying to the N. W. moderate br. misty. *I. N.* 26°.
18	20 42	31 11	29 54	—	1 50	22	28 2	28 2	N. and N. N. W. l. br. fr.
19	21 7	32 29	—	—	1 45	20	28 3	Do.	N. varying to the N. W. and to the S. by W. l. br. misty. *I. N.* 28°.
20	20 44	33 44	—	—	—	20	28 2	Do.	S. varying to the E. S E. moderate br. rain.
21	20 49	34 40	34 0	—	2 24	19	Do.	Do.	S. E. do.
22	20 30	36 10	34 26	—	2 24	—	28 3	28 3	S. S. E. and S. moderate br. fr.
23	20 30	87 13	35 43	37 36	2 16	19	28 4	Do.	S. varying the S. S. E. l. br. fair.
24	21 26	38 0	—	—	4 36	19	28 3	28 2	S. E. varying to the E. S. E. moderate br. fair.
25	23 28	39 51	—	—	—	19	27 11	27 9	E. and E. N. E. moderate br. misty.
26	24 14	40 50	39 3	41 3	—	20	27 9	27 11	E. N. E. varying to the W. N. W. by S. moderate br. fr.
27	25 5	41 43	39 36	41 44	7 6	20	28 0	28 0	W. N. W. & N. l. br. fr.
28	24 47	42 0	39 34	41 41	7 9	20	28 2	28 2	W. varying to the S. W. little wind, misty.
29	24 47	42 56	—	—	7 14	20	Do.	Do.	S. varying to the E. N. E. little w. fair.
30	25 25	44 29	—	—	—	21	28 1	27 11	N. varying to the E S. E. little wind, foggy. *I. N.* 36°.
31	25 42	45 10	—	—	—	21	Do.	28 0	Do.
N. 1	26 50	46 35	—	—	9 5	20	Do.	28 1	S. E. & E. S. E. l. br. r.
2	27 39	47 38	45 33	—	9 4	20	28 0	27 11	E. varying to the N. W. l. br. fair.
3	27 30	49 5	—	—	—	19	28 2	28 2	N. N. W. var. to the S. S. E. by S. l. br. fair.

Nov. Dec 1785.	Latitude South.	Long. computed West.	Long. W. by the Time Piece, No. 18.	Long. W. by the Dif. of the Al from the Sun.	Declination of the Needle	Thermometer, observed at noon.	Barometer observed at 9 in the morning and 3 in the afternoon.		Winds; State of the Sky; Remarks.
							At 9.	At 3.	
	D. M.	D. M.	D. M.	D. M	D. M.	D.	P. L.	P. L.	
N. 4	-7 9	49 5	—	—	—	19	28 1	28 1	S. E. varying to the S. little wind, rain.
5	27 0	49 39	—	—	9 55	19	28 2	28 2	S. S. E. and S. l br. r.
6	27 18	—	—	—	—	19	Do.	Do.	E S. E. varying to the N. l. br ſt.
7	—	—	47 16	—	—	20	—	—	S. and S. E. moderate br. misty.
8	—	—	—	—	—	19	28 2	28 2	S. E. varying to the E. N. E. little wind, misty.
9	—	—	—	—	—	19	—	—	N. E. l. br. misty.
10	—	—	—	—	—	19	—	—	N. varying to the N. N. E. moderate br. rain.
11	—	—	—	—	—	20	28 1	—	E. varying to the E. N. E. moderate br. rain.
12	—	—	—	—	—	20	Do.	28 0	S. E. and E. S. E. l. br. m.
13	—	—	—	—	—	20	—	—	S. varying to the E. a calm, do.
14	—	—	—	—	—	20	—	28 0	N. E. and E. N. E. l. br. fair.
15	—	—	—	—	—	21	—	28 1	N. N. E. varying to the S. W. by E. very little wind, rain.
16	—	—	—	—	—	—	—	—	S. E. and E. l. br. fair.
17	—	—	—	—	—	20	28 2	28 2	E. varying to the N. E. moderate br. ſt. *I. N.* 40°.
18	—	—	—	—	—	21	Do.	28 1	N. varying to the N. N. W. little wind, ſt. *I. N.* 38°.
19	—	—	—	—	—	21	28 0	Do.	E. N. E. varying to the S. W. by E. a calm, fair. *I. N.* 40°.
20	27 39	49 19	—	—	9 19	20	28 2	Do.	S. varying to the S. S. W. moderate br. fr.
21	28 3	48 37	48 22	47 52	—	19	Do.	Do.	S. varying to the S. l. br. fair.
22	28 52	48 10	—	—	8 10	19	28 1	28 0	S. varying to the N. E. moderate br. mif.
23	30 59	46 39	46 34	46 37	—	20	Do.	Do.	N. E. and E. N. E. moderate br. misty.
24	31 37	46 11	46 5	46 6	—	20	28 2	28 2	N. E. varying to the S. S. W. by N. l. br. foggy.
25	32 37	45 39	45 35	45 43	—	18	Do.	Do.	E. S. E. varying to the N. N. E. by E. l. br. foggy.
26	33 39	44 45	—	—	10 24	18	Do.	28 1	N. E. and E. N. E. little wind, misty.
27	35 0	44 11	—	—	—	18	27 11	27 8	E. N. E. and E. l. br. r.
28	35 23	44 40	44 20	—	9 57	17	Do.	28 0	E. varying to the S. fr. g. rain.
29	35 43	43 57	—	—	9 40	17	28 2	28 3	S. S. W. varying to the W. moderate br. misty.
30	36 27	43 8	42 1	—	—	18	28 8	Do.	W. varying to the W. N. W. l. b. fair.
D. 1	37 41	41 31	39 57	—	—	17	Do.	28 2	W. N. W. l. br. misty. *I. N.* 50°.

Dec. 1755.	Lat. South.	Long. computed West.	Long. W. by the Time-Pieces, No. 18.	Long. W. by the Dist. of the M. from the Sun.	Declination of the Needle E.	Therm. in the open air at noon.	Barometer at 9 in the morning and 3 in the afternoon.	Winds; State of the Sky; Remarks.
	D. M.	D. M.	D. M.	D. M.	D. M.	D.	At 9. P. L. / At 3. P. L.	
D. 2	38 30	40 37	38 29	—	—	18	28 1 / 28 1	N. W. and W. N. W. l. br. foggy.
3	39 56	39 4	37 0	—	8 33	16	27 9 / 27 11	N. W. varying to the W. S. W. gusts of wind, rain.
4	40 49	38 2	36 2	—	8 28	13	28 1 / 28 1	S. W. and S. S. W. moderate br. misty
5	42 34	37 36	35 17	—	—	14	28 0 / 27 11	W. S. W. and W. moderate br. misty.
6	43 50	37 12	34 32	—	—	13	27 10 / 27 10	N. W. varying to the S. W by W. moderate br. rather foggy.
7	44 42	36 17	33 43	34 36	—	12	28 0 / 28 0	W. S. W. and S. S. W. mod. br. misty
8	45 9	36 16	33 24	35 12	7 41	11	27 10 / 27 9	S. W. and W. moderate br. rain.
9	44 17	36 20	33 11	34 18	7 40	11	27 11 / 27 11	W and W. N W moderate br. do.
10	44 60	37 11	—	—	—	13	27 8 / 27 6	W. N. W. and N. W. l. br. foggy.
11	44 50	37 39	34 38	—	—	11	27 7 / 27 10	N. N. W. varying to the S. by W. gusts of wind and rain.
12	44 33	38 38	—	—	7 46	11	27 9 / 27 8	S S. W varying to the N. by W. fr. g. rain.
13	45 20	39 28	—	—	8 43	12	27 9 / 27 9	N. W. and N. fr. g. foggy.
14	44 1	39 53	36 4	—	8 45	11	28 1 / 28 2	W. N. W. and W. S. W. l. br. gusts of wind, rain.
15	43 28	40 57	36 57	—	8 29	11	28 3 / 28 1	W. S. W. and W. N. W. little wind, fair. w.
16	44 18	42 20	—	—	—	13	27 10 / 27 11	N. W. varying to the S. W. by W. l. br. foggy.
17	44 44	42 35	—	—	10 38	12	28 1 / 28 0	W. varying to the N. E. by S. little wind, misty.
18	44 55	43 56	40 9	—	12 15	12	28 0 / 28 1	N. varying to the S W. by W. moderate br. rain.
19	44 35	45 40	41 54	—	13 0	11	27 11 / 27 11	S. W. varying to the E. S. E. by S. l. br. misty.
20	44 43	46 48	—	—	13 12	12	27 10 / 27 10	S. E. varying to the W. N. W. by W. little wind, do.
21	44 53	47 50	44 46	—	—	13	27 9 / 27 9	S. W. varying to the W. N. W. by W. l. br. foggy.
22	44 50	48 23	44 55	43 60	13 41	13	27 10 / 27 10	N. W. varying to the W. S. W. by W. l. br. rather foggy.
23	43 25	48 21	45 13	44 32	—	13	27 11 / 27 11	S. W. and W S. W. little wind, fair.
24	43 26	48 44	—	—	13 45	13	27 8 / 27 9	W. S. W. and S. W. gusts of wind, rain.
25	42 27	49 29	47 9	46 43	13 55	12	28 0 / 28 1	S. W. and S. S. W. heavy g. misty.
26	42 32	49 47	—	—	14 0	13	27 10 / 27 10	S. W. and N. W. by W. l. br. misty.

Dec. 1785. Jan. 1786.	Latitude South.	Long. computed West.	Long. W. by the Time Piece, No. 18.	Long. W. by the Ist. of the M. from the Sun.	Declination of the Needle East.	Ther. interior, ob. sved at noon.	Barometer of Nairne observed at 9 in the morning and 3 in the afternoon. At 9.	At 3.	Winds; State of the Sky; Remarks.
	D. M.	D. M.	D. M.	D. M.	D. M.	D.	P. L.	P. L.	
D.27	42 20	50 36	48 23	—	14 8	13	27 9	27 9	E.N.E. varying to the S. E by S. l. br. r.
28	42 1	51 36	49 3	—	—	13	27 10	27 8	S. S. W. and N. W. by W. little wind, fair.
29	41 46	52 41	—	—	15 8	13	27 11	28 0	N. N. W. varying to the S. S. W. by W. gusts of wind, rain.
50	42 11	53 38	50 33	—	—	14	27 10	27 9	S. varying to the N. W. by W. moderate br. misty.
31	42 22	54 41	—	—	—	15	27 8	27 10	N. W. varying to the S. S. W by W. moderate br. gusts of wind, rain.
1786									
J. 1	41 33	55 16	52 33	—	15 58	14	27 9	27 11	S. S. W. and S. fr. g. gusts of wind, rain.
2	41 31	56 25	53 17	—	—	15	28 2	28 1	S. S. W. varying to the S. E. and to the N. by W. little wind, fair.
3	42 37	57 58	54 28	54 31	16 44	16	27 10	27 11	N. varying to the W. S. W. by W. moderate br. misty.
4	42 45	60 35	55 47	56 0	—	16	28 0	Do.	W. varying to the S. E. by N. l. br.
5	43 34	60 35	56 49	57 31	—	16	27 10	27 9	N. N. E. varying to the S. E. by W. little W. st.
6	44 53	61 19	57 24	—	17 29	15	27 9	27 4	E. N. E. varying to the W. S. W. by W. partial gusts of wind, rain.
7	44 55	61 58	58 26	—	18 20	14	27 9	27 8	S. W. varying to the N. N. W. by W. fr. g. misty.
8	45 32	62 51	59 26	60 13	19 0	13	27 8	27 9	W. S. W. varying to the S. moderate br. gusts of wind, misty.
9	46 47	64 1	—	—	19 30	12	27 5	27 4	W. S. W. and W. N. W. moderate br. cl.
10	47 47	64 27	61 1	—	20 3	11	Do.	27 6	N. W. and W. S. W. l. br. clear.
11	48 14	64 40	61 38	—	20 24	11	27 7	27 8	W. and S. S. W. little wind, fair.
12	47 58	65 24	62 30	—	20 25	11	27 8	27 9	W. S. W. and S. little wind, fair.
13	46 50	66 33	63 37	—	—	12	28 2	28 2	S. W. moderate br. gusts of wind, cl.
14	47 52	67 58	64 47	—	20 50	11	27 9	27 10	W. S. W. and N. W. moderate br. rain.
15	48 57	68 58	65 51	—	21 41	12	27 8	27 8	W. varying to the N. N. E. by N. and to the W. S. W. by W. l. br. fair.
16	49 45	69 7	66 10	—	21 58	11	27 11	28 0	W. varying to the S. W. by W. little wind, fair.
17	50 4	69 55	67 7	—	22 11	10	28 2	28 3	W. N. W. varying to the S. S. E. by S. l. br. cl.

Jan. Feb. 1788.	Lat. South.		Longitude computed West.		Long. W. by the Time-Piece, No. 18.		Lon. W. by the Dif. o: the M. from the Sun.		Declination of the Needle E.		Ther.	Barometer of Nairne observed at 9 in the morning and 3 in the afternoon.				Winds § State of the Sky § Remarks.
												At 9		At 3.		
	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	P.	L.	P.	L.	
J. 18	49	58	70	45	68	1	—		22	52	10	28	3	28	4	S. S. E. varying to the S. W. by S. l. br. fair.
19	50	16	71	39	68	56	—		23	27	11	28	4	28	3	S. varying to the N. E. by E. little wind, cl.
20	50	58	72	58	70	29	68	34	23	18	12	28	2	28	1	N. E. and E. N. E. l. br. fair. *I. N.* 64°.
21	51	34	73	17	—		69	17	22	55	12	Do.		28	2	N. N. W. and S. S. E. by E. little wind, do.
22	52	22	72	56	70	49	69	32	22	47	13	Do.		28	1	S. E. varying to the W. N. W. by E. and to the N. cl.
23	53	41	68	32	69	43	68	40	—		11	28	3	Do.		N. W. varying to the S. W. moderate br. misty.
24	54	33	67	10	67	58	66	50	—		11	27	11	28	10	N. W. and N. N. W. moderate br. cl. *I. N.* 68°.
25	56	17	68	8	67	47	—		—		11	27	8	27	8	N. N. W. and S. W by W. l. br. cl. rain.
26	57	8	68	35	67	51	—		—		10	27	7	27	5	S. W. and W. moderate br. misty.
27	57	57	69	32	67	45	—		—		9	27	4	27	3	W. S. W. and W. gusts of wind, rain.
28	57	52	71	43	70	19	—		—		9	27	6	27	9	W and W. N. W. varying to the S. E. by S. l. br. cl.
29	58	18	73	13	70	60	—		—		9	27	5	27	4	S. S. E. and W. S. W. by S. moderate br. rain.
30	57	53	73	47	72	37	—		—		9	27	7	27	7	W. and W. S. W. gusts of wind, misty.
31	58	38	74	13	—		—		—		9	27	8	27	6	W. S. W. and W. N. W. little wind, rain
F. 1	57	59	75	10	73	4	—		—		9	27	8	27	8	W. and W. S. W. l. br. rather foggy.
2	58	22	76	41	74	22	—		27	8	9	27	8	27	7	W. and W. N. W. little wind, cl. rain. *I. N.* 70°.
3	58	52	78	53	76	33	—		—		9	27	11	26	7	W. N. W. and N, NW. moderate br. rain.
												26	10	26	11	
4	58	48	79	20	76	27	—		27	11	9	27	1	27	2	N. varying to the W. S. W. fr. g. gusts of wind, rain.
5	59	38	80	28	77	20	—		—		8	27	3	27	1	W. S. W. and N. W. by W. gusts of wind.
6	60	37	82	1	79	1	—		—		8	27	0	27	1	W. and W. S. W. moderate br. rain.
7	59	20	83	43	80	53	—		—		8	27	3	27	1	S. W. and S. S. W. gusts of wind, rain.
8	58	40	85	2	81	32	—		—		7	27	1	27	3	S. W. a calm. Afterwards E. N. E. and E. S. E. cl.
9	57	15	88	12	84	32	—		—		7	27	4	27	4	E. S. E. varying to the S. S. W. gusts of wind, cl. *I. N.* 10°.
10	56	0	89	9	85	26	—		—		7	27	4	27	6	S. S. E. varying to the S. W. by S. partial gusts of wind, overcast, rain.

Feb. Mar. 1786.	Latitude South.		Long. computed West.		Long. W. by the Time Piece, No. 18.		Long. W. by the Dif. of the Mn. from the Sun.		Declination of the Needle E.		Diff. between, observed at noon.	Barometer or Nairne, observed at 9 in the morning and 3 in the afternoon.				Winds; State of the Sky; Remarks.
												At 9.		At 3.		
	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	P.	L.	P.	L.	
F. 11	53	47	89	44	86	20	—		—		8	27	9	27	9	S. S. W. and W. S. W. moderate br. cl.
12	53	8	89	46	86	21	—		—		9	27	6	27	6	S. W. varying to the N. W. by W. l. br. foggy.
13	51	17	89	22	86	7	—		—		9	27	8	27	7	S. W. and W. S. W. partial gusts of wind, rather foggy.
14	49	58	88	59	86	1	—		—		9	27	10	27	10	W. S. W. and W. N. W. l. br. rain.
15	48	3	88	21	85	15	—		—		10	27	8	27	7	W. N. W. and W. S. W. gusts of wind, rain.
16	45	24	87	30	84	39	—		—		10	27	11	28	1	W. and S. W. fr. g. rain.
17	43	27	86	41	83	28	—		—		11	28	1	28	2	S. S. W. and W. N. W. by W. moderate br. rather foggy.
18	42	19	36	3	82	41	—		—		13	Do.		28	0	W. and S. W. l. br. foggy. *I. N.* 62°.
19	41	4	85	2	81	29	—		—		14	Do.		28	2	S. S. W. and W. N. W. l. br. hazy.
20	40	1	83	39	80	3	78	39	17	29	15	28		28	3	S. S. W. and W. N. W. moderate br. cl.
21	39	5	81	49	78	17	77	9	15	39	15	Do.		28	2	S. W. varying to the S. S. E. by S. l. br. misty.
22	37	51	80	41	77	28	76	28	15	0	15	28	2	28	2	S. S. E. varying to the S. W. l. br. fair.
23	36	42	79	46	76	31	75	45	14	49	15	28	1	28	1	S. and S. S. W. moderate br. fair
24	—		—		—		—		—		14	28	2	28	2	S. S. W. varying to the S. S. E. by S. l. br. cl.
25	—		—		—		—		—		15	Do.		—		S. varying to the S. W. little wind, fair.
26	—		—		—		—		—		15	28	1	—		S. W. and S. l. br. fair.
27	—		—		—		—		—		16	Do.		—		S. and S. S. W. a calm, foggy.
28	—		—		—		—		—		16	Do.		28	1	S. and S. W. a calm, fair.
M. 1	—		—		—		—		—		16	Do.		Do.		S. and S. S. W. moderate br. fair.
2	—		—		—		—		—		16	28	3	28	3	S. S. W. a calm, fair.
3	—		—		—		—		—		16	Do.		—		Do.
4	—		—		—		—		—		15	—		28	2	S. S. W. and S. W. little wind, fair *I. N.* 56°
5	—		—		—		—		—		15	28	2	28	1	S. S. W. moderate br. fair.
6	—		—		—		—		—		15	—		—		S. W. little wind, foggy.
7	—		—		—		—		—		16	28	1	—		S. S. W. and S. W. l. br. fair.
8	—		—		—		—		—		17	—		—		Do.
9	—		—		—		—		—		16	—		—		S. W. and W. S. W. l. br. foggy.
10	—		—		—		—		—		15	—		—		Do.
11	—		—		—		—		15	20	15	—		—		S. S. W. and W. S. W. fair.
12	—		—		—		—		—		15	—		—		S and S. S. W. little wind, cl.
13	—		—		—		—		—		15	—		—		Do.
14	—		—		—		—		—		15	28	1	28	1	N. and N. N. E. little wind, foggy.

March & April, 1786.	Latitude South.	Long. computed West.	Long. W. by the Time-Piece, No. 18.	Long. W. by the Diſt. of the Mn. from the Sun.	Declination of the Needle E.	Therm. inteſior, obſvd. at noon.	Barometer of Natrn, obſerved at 9 in the morning and 3 in the afternoon.		Winds; State of the Sky; Remarks.
							At 9.	At 3.	
	D. M.	D. M.	D. M.	D. M.	D. M.	D.	P. L.	P. L.	
M. 15	—	—	—	—	—	14	—	—	N. and N. N. E. little wind, misty.
16	—	—	—	—	—	Do.	—	—	N. and N. W. moderate br. rain.
17	—	—	—	—	—	Do.	—	—	S. and S. S. E. little wind, foggy.
18	36 38	75 58	—	—	15 20	15	28 2	28 2	S. W. and S. S. E. a calm, cl.
19	35 29	77 9	—	—	15 13	Do.	28 1	28 3	W. S. W. varying to the S. S. E. l. br. cl.
20	33 40	79 19	79 6	—	14 0	Do.	28 3	28 4	S. W. and S. S. W. fr. g. misty.
21	32 33	81 39	81 42	—	—	16	28 5	28 5	S. varying to the S. S. E. fr. g. cl.
22	31 29	83 52	—	—	—	17	Do.	28 4	S. and S. E. fr. g. cl.
23	30 31	86 8	85 45	85 32	10 40	Do.	28 4	28 3	S. varying to the E. S. E. mod. br. misty.
24	29 48	87 56	87 28	87 8	9 33	18	28 3	28 2	Do. rather foggy.
25	29 12	89 50	89 1	88 54	9 22	Do.	Do.	28 3	E. S. E. and S. E. moderate br. cl.
26	28 35	91 33	90 37	90 24	7 55	Do.	28 4	28 4	Do.
27	27 53	94 5	92 52	—	7 56	Do.	28 5	28 5	S. E. and E. l. br. fair.
28	27 33	96 41	95 13	—	7 52	19	Do.	28 4	E. and E. S. E. fr. g. gusts of wind, rain.
29	27 17	98 47	97 5	—	7 56	Do.	28 4	Do.	Do. cl.
30	27 9	100 37	99 1	—	7 14	Do.	Do.	28 3	Do. *I. N.* 53°.
31	26 59	102 44	101 1	—	7 11	Do.	Do.	28 4	S. E. and S. S. E. l. br. fair. *I. N.* 53°.
A. 1	27 6	104 49	103 3	—	7 57	20	Do.	Do.	E. S. E. moderate br. cl.
2	27 7	107 15	105 14	—	5 28	Do.	28 5	Do.	E. S. E. and E. N. E. partial gusts of wind, misty.
3	27 7	109 23	107 19	107 8	—	21	Do.	Do.	E. varying to the N. E. moderate br. cl.
4	27 11	111 14	109 0	—	5 9	Do.	28 3	28 2	N. E. and N. N. W. by N. l. br. rain.
5	27 4	111 45	109 20	—	—	Do.	28 2	Do.	N. N. W. and N. W. little wind, cl.
6	27 3	111 54	109 12	—	—	22	28 1	28 1	N. N. W. and W. N. W. fr. g. cl.
7	26 57	112 36	—	—	—	21	28 2	28 2	W. N. W. varying to the E. S. E. by S. little wind, rain. *I. N.* 52°.
8	27 8	113 40	111 1	—	—	Do.	28 1	27 11	S. E. varying to the N. E. by E. l. br. cl. rain.
9	27 10	114 25	111 55	—	—	Do.	Do.	28 1	N. E. varying to the S. E. by E. little wind, cl.
10	27 9	—	—	—	—	Do.	—	—	S. E. and E. S. E. moderate br. fair.
11	26 26	111 58	—	—	3 54	20	28 4	28 3	S. S. E. and S. E. little wind, fair.
12	25 5	111 56	111 54	—	4 0	Do.	—	28 4	S. and S. E. l. br. cl.
13	23 19	111 48	111 54	—	4 2	Do.	28 4	28 3	S. E. and S. S. E. l. br. fair. *I. N.* 54°.
14	21 50	111 37	111 57	—	4 0	21	28 3	Do.	S. E. and S. S. E. l. br. fair.
15	20 39	111 31	112 2	—	4 39	Do.	—	Do.	S. E. and E. cl.

April, May, 1786.	Latitude South.	Longit. computed West.	Long. W. by the Time Piece, No. 18.	Long. W. by the Dif. of the M. from the Sun.	Declination of the Needle E.	Ther. interior, obs'vd at noon.	Barometer at Naitoe, observed at 9 in the morn. ing, and 3 in the afternoon.		Winds; State of the Sky; Remarks.
							At 9.	At 3.	
	D. M.	D. M.	D. M.	D. M.	D. M.	D.	P. L.	P. L.	
A.16	19 5	111 40	112 16	—	4 38	21	28 4	28 3	E. and E. N. E. gusts of wind, cl.
17	17 33	112 4	112 54	—	4 19	22	Do.	Do.	N. E. and E. N. E. moderate br. misty.
18	16 8	112 22	113 9	—	4 10	21	28 3	28 2	E. N. E. and N. E. l. br. cl.
19	14 12	112 27	113 19	—	4 8	22	Do.	28 1	N. E. and E. moderate br. misty.
20	12 14	112 34	113 31	113 9	4 19	22	28 2	28 2	E. N. E. and E. S. E. moderate br. cl.
21	10 11	112 39	113 51	113 36	3 58	23	28 3	Do.	Do.
22	8 23	112 58	114 17	113 42	4 6	23	28 2	28 1	E. and E. S. E. moderate br. fair.
23	6 41	113 16	114 59	114 81	3 50	24	Do.	Do.	E. S. E. and S. E. l. br. fair.
24	5 29	113 41	115 46	—	3 39	23	Do.	28 2	S. E. and S. S. E. l. br. fair.
25	4 20	114 25	116 64	—	2 54	24	28 3	Do.	E. S. E. and S. E. do. *I. N.* 36°.
26	3 20	115 10	118 8	—	2 4	24	Do.	28 1	Do. *I. N.* 33°.
27	2 15	115 45	118 40	—	2 50	24	28 2	28 2	S. E. and E. S. E. l. br. cl.
28	1 0	116 22	119 6	—	3 47	24	Do.	Do.	Do.
	North.								
29	0 12	116 47	119 10	—	3 50	23	Do.	28 1	E. S. E. and S. S. E do. *I. N.* 27°.
30	1 37	117 18	119 29	—	4 8	23	Do.	Do.	Do fair.
M. 1	2 55	118 2	120 18	119 39	4 28	23	28 1	Do.	S. E. and S. S. E. l. br. cl.
2	4 3	118 43	121 4	121 13	2 47	24	Do.	Do.	Do. misty.
3	5 10	119 10	121 33	121 46	2 39	24	28 2	Do.	E. S. E. and S. E. little wind, cl.
4	5 46	119 23	121 25	—	3 25	24	Do.	Do.	S. S. E. and E. S. E. little wind, fair.
5	6 10	119 37	—	—	3 40	25	Do.	Do.	S. E. varying to the N. by E. a calm, misty.
6	7 4	120 21	122 12	122 32	3 14	25	Do.	Do.	E. and E. N. E. gusts of wind, cl.
7	8 17	121 9	123 21	—	3 49	25	Do.	Do.	N. E. varying to the S. E. by E. l. br. cl.
8	9 25	121 43	124 11	—	3 30	25	Do.	Do.	E. and N. E. little wind, cl.
9	10 44	122 53	125 57	—	4 4	23	Do.	Do.	N. E. and N. N. E. l. br. cl.
10	11 51	124 8	127 24	—	3 57	22	Do.	28 2	Do.
11	13 32	125 15	128 46	—	—	22	Do.	Do.	Do.
12	14 46	126 18	130 8	—	3 53	21	28 3	Do.	Do. misty.
13	16 28	127 33	131 37	—	—	20	Do.	Do.	Do. moderate br.
14	18 9	128 51	133 1	—	—	20	Do.	Do.	N. E. and E. N. E. fr. g. cl.
15	19 14	130 23	134 46	—	5 51	19	Do.	28 3	Do.
16	19 49	131 57	136 10	—	8 17	19	Do.	Do.	Do.
17	20 1	138 23	137 33	—	8 20	19	Do.	Do.	N. E. and E. l. br. misty.
18	20 0	135 9	139 21	—	8 18	19	28 4	Do.	E. and E. N. E. do.
19	20 1	137 8	141 19	—	8 11	20	28 3	Do.	Do. cl.
20	19 59	138 50	142 58	141 50	8 27	20	Do.	28 2	E. and E. N. E. l. br. cl.
21	19 55	140 29	144 49	143 56	—	20	Do.	28 3	Do.
22	20 5	142 29	146 43	146 19	8 45	20	Do.	28 3	E. l. br. fair.
23	20 4	144 16	148 33	148 25	—	20	28 4	28 4	Do. rather cloudy. *I. N.* 10°.
24	20 45	146 16	150 40	—	8 8	20	Do.	Do.	Do. *I. N.* 5°.
25	20 57	148 20	152 52	—	9 33	20	Do.	28 3	Do. misty.

May, June, 1786.	Latitude North.	Long. computed West.	Long. W. by the Time Piece, No. 18.	Long. W. by the Dis. of the M. from the Sun.	Declination of the Needle E.	Ther. Interior, observed at noon.	Barometer at Nairne, observed at 9 in the morning and 3 in the afternoon.		Winds & State of the Sky & Remarks.
							At 9.	At 3.	
	D. M.	D. M.	D. M.	D. M.	D. M.	D.	P. L.	P. L.	
M 26	20 59	150 14	154 49	—	9 27	20	28 4	28 3	E. and E. N. E. moderate br. cl.
27	21 0	152 5	156 37	—	9 28	20	28 3	Do.	Do. rain.
28	20 49	153 18	157 44	—	9 15	21	Do.	Do.	E. and E. S. E. l br. cl.
29	20 33	154 27	158 43	—	—	21	Do.	Do.	E. N. E. and E. S. E. l. br. gusts of wind, rain.
30	—	—	—	—	—	21	Do.	Do.	E. N. E. moderate br fair.
31	21 15	159 24	160 7	—	8 32	22	28 4	28 3	E. S. E. and E. N. E. little wind, fair.
J. 1	22 55	159 59	160 38	160 16	9 34	22	28 5	28 4	E. N. E. and N. E. moderate br. cl.
2	24 48	160 1	160 48	160 34	9 27	22	28 6	28 5	E. N. E. and E. moderate br. gusts of wind, rain.
3	26 29	160 17	161 23	161 22	11 0	24	28 4	28 6	E. and E. N. E. l. br. cl.
4	28 3	160 30	161 28	161 20	10 57	21	28 3	28 5	N. E. and E. N. E. l. br cl.
5	29 11	160 29	161 33	—	11 30	20	Do.	28 3	E. N. E. varying to the S. E. by E. l. br. fair.
6	30 47	160 5	160 57	—	11 44	20	Do.	28 2	E. S. E. varying to the S. S. W. by S. moderate br. cl.
7	32 27	159 43	160 16	—	12 8	20	Do.	28 3	S. S. W. varying to the S. W. l. br. cl. rain.
8	33 55	159 13	160 6	—	12 40	20	Do.	Do.	S. W. and S. S. E. by S. moderate breeze, foggy.
9	34 58	158 52	159 13	—	—	19	28 5	28 5	S. S. W. varying to the N. W. by W. l. br. rain.
10	35 47	158 32	—	—	—	19	Do.	28 4	N. varying to the S. S. E. by W. little wind, foggy.
11	36 59	158 13	—	—	—	16	28 4	Do.	S. varying to the S. W. and to the E. N. E. by E. l. br. foggy.
12	38 1	157 52	158 1	—	—	16	Do.	—	E. N. E. and S. E. varying to the S. W. by S. little wind, foggy.
13	39 13	157 19	—	—	—	16	Do.	28 4	S. and S. S. W. l. br. foggy.
14	41 6	156 18	155 58	—	—	15	28 3	28 2	Do.
15	43 12	156 13	155 17	—	—	13	28 1	28 1	S. W. and W. S. W. l. br. rain.
16	45 1	153 25	153 23	—	—	12	Do.	Do.	W. and N. W. gusts of wind, rain.
17	46 46	151 43	151 36	—	—	11	Do.	28 0	W. N. W. and W. S. W. moderate br. cl.
18	48 22	150 39	150 4	—	—	11	27 10	27 10	W. and S. W. moderate br. misty.
19	50 6	149 34	149 1	—	—	10	Do.	Do.	W. N. W. and W. S W. l. br. cl.
20	51 53	148 31	147 50	147 50	23 32	9	27 9	Do.	S. W. and W. S. W. little wind, misty.
21	53 20	147 41	147 5	—	24 58	10	27 11	27 11	W. varying to the S. S. E. by S. l. br. rather foggy.

June, July, 1786.	Lat. Nor.	Long. computed W.	Long. W. by the Time-Piece, No. 18.	Long. W. by the Dif. of the M. from the Sun.	Declination of the Needle E.	Therm. Interior, observed at noon.	Barometer of Nairne, observed at 9 in the morning and 3 in the afternoon.		Winds; State of the Sky; Remarks.
							At 9.	At 3.	
	D. M.	D. M.	D. M.	D. M.	D. M.	D.	P. L.	P. L.	
J. 22	55 43	145 38	145 45	—	23 25	9	28 2	28 2	S. S. E. and E. S. E. moderate br. cl.
23	57 46	143 55	144 11	—	—	10	Do.	Do.	Do. misty.
24	59 23	141 57	143 36	—	—	10	27 11	27 11	E. S. E. and E. N. E. l. br. rain.
25	59 29	141 22	142 39	—	31 30	11	28 1	28 2	S. and S. W. varying to the S. E. by S. foggy.
26	59 42	141 8	142 43	—	31 24	11	27 10	27 10	S. E. varying to the W. N. W. by S. little wind, foggy.
27	59 19	142 19	142 44	—	31 0	11	27 8	27 8	W. N. W. varying to the E. N. E. by N. little wind, cloudy.
28	59 20	142 36	142 46	—	—	10	27 10	27 10	E. and E. N. E. l. br. rain.
29	59 20	141 59	—	—	—	11	27 11	27 11	E. varying to the S. W. by S. little wind, cl. rain.
30	58 54	141 37	141 46	140 57	25 30	10	28 1	28 2	S. and S. S. W. little wind, rain.
Jl. 1	59 7	140 56	141 26	—	—	10	28 3	28 4	S. varying to the W. S. W. and to the W. N. W. little wind, foggy.
2	58 38	140 16	140 16	—	25 38	11	28 2	—	W. S. W. and S. W. little wind, cl.
3	58 43	139 58	139 59	139 55	—	10	27 10	—	W. and W. N. W. little wind, fair.
4	—	—	—	—	—	10	—	—	W. N. W. and N. W. l. br. fair.
5	—	—	—	—	—	11	—	—	W. N. W. and W. moderate br. cl.
6	—	—	—	—	—	11	—	—	E. and E. N. E. little wind, foggy.
7	—	—	—	—	—	11	—	—	N. E. and N. little wind, fair.
8	—	—	—	—	—	11	—	—	N. E. and E. N. E. a calm, foggy.
9	—	—	—	—	—	11	—	—	S. W. little wind, cl.
10	—	—	—	—	—	11	—	—	E. N. E. varying to the S. by E. a calm, foggy.
11	—	—	—	—	—	11	—	—	N. E and E. little wind, foggy.
12	—	—	—	—	—	10	—	—	N. E. and E. N. E. little wind. foggy.
13	—	—	—	—	—	11	—	—	N. E. varying to the S. W. by E. l. br. rather foggy.
14	—	—	—	—	27 0	11	—	—	N. E. varying to the S. W. by E. l. br. cl.
15	—	—	—	—	—	11	—	—	W. varying to the N. E. by N. little wind, misty.
16	—	—	—	—	—	11	—	—	W. moderate br. cl.
17	—	—	—	—	—	11	—	—	S. W. varying to the W. N. W. by W. l. br. foggy.
18	—	—	—	—	—	11	—	—	E. and E. N. E. moderate br. cl. rain.

July, Aug. 1766.	Lat. Nor.	Long. computed West.	Long. W. by the Time Piece, No. 18.	Long. W. by the Dif. of the M. from the Sun.	Declination of the Needle, E.	Ther. inter. observed at Noon.	Barometer at 9 in the morning and 3 in the afternoon.		Winds; State of the Sky; Remarks.
							At 9.	At 3	
	D. M.	D. M	D. M.	D. M.	D. M.	D.	P. L.	L. P.	
J. 19	—	—	—	—	—	10	—	—	E. N. E. and E. S. E. do.
20	—	—	—	—	26 55	10	—	—	N. E. varying to the S. E. by E. l. br. rather foggy.
21	—	—	—	—	—	10	—	—	W. N. W. and W. little wind, cl. rain
22	—	—	—	—	—	10	—	—	W and W. N. W. moderate br. fair.
23	—	—	—	—	25 47	11	—	—	W. N. W. varying to the N. E. by N. little wind, cl.
24	—	—	—	—	—	10	—	—	N. W. and S. W. little wind, misty.
25	—	—	—	—	—	10	—	—	W. S. W. and W. moderate br. fair.
26	—	—	—	—	—	10	—	—	E. S. E. and S. E. moderate br. cl. rain.
27	—	—	—	—	—	11	—	—	E. and E. S. E. very little wind, rain.
28	—	—	—	—	—	10	—	—	N. E. and E. l. br. rain. cl.
29	—	—	—	—	—	9	28 1	—	Do.
30	—	—	—	—	26 43	—	—	—	W. N. W. l. br.
31	—	—	—	—	—	—	—	—	W. N. W. very little wind, fair.
A. 1	58 20	140 0	—	—	26 50	—	—	—	W. N. W. l. br. fair.
2	58 19	139 54	—	—	26 45	—	—	—	N. W. and S. S. W. very little wind, fair.
3	57 59	139 52	—	—	26 48	—	—	—	W. very little wind, misty.
4	57 45	139 9	—	—	—	—	—	—	E. varying to the S. S W. by S. very little wind.
5	57 17	138 26	—	—	26 34	—	—	—	E. very little wind, foggy.
6	57 20	138 20	138 40	—	25 0	—	—	—	W. N. W. very little wind, fair.
7	56 30	137 5	137 29	—	25 7	—	—	—	N. W. Do.
8	55 42	136 27	136 48	—	—	—	—	—	W. fair, l. br.
9	54 47	135 49	136 9	—	—	—	—	—	W. fr. br. misty.
10	54 21	135 8	135 43	—	—	—	—	—	W. S. W. fr. br. foggy.
11	54 10	135 23	135 49	—	—	—	—	—	N. N. W. l. br. foggy.
12	54 2	136 14	—	—	—	—	—	—	Do.
13	53 59	136 6	—	—	—	—	—	—	S. very little wind, do.
14	53 49	135 41	136 19	—	—	—	—	—	S. and E. S. E. very foggy.
15	53 50	135 52	136 8	—	—	—	—	—	E. l. br. misty.
16	53 21	136 32	136 54	—	—	—	—	—	Do.
17	53 15	136 26	136 41	137 2	23 39	—	—	—	N. E. very little wind, misty.
18	52 34	134 29	136 46	—	23 16	—	—	—	N. W. l. br. fair.
19	52 7	134 0	134 4	—	22 26	—	—	—	N. W. and S. W. little wind, misty.
20	51 40	133 35	133 41	—	21 20	—	—	—	N. W. and W. l. br. fair.
21	52 2	132 50	133 7	—	20 58	—	—	—	W. and S. S. W. fr. g. fair.
22	52 15	131 56	—	—	—	—	—	—	S. and S. E. fr. g. misty.
23	51 48	132 31	131 53	—	19 30	—	—	—	S. E. heavy g. foggy.
24	51 2	132 5	131 40	—	21 20	—	—	—	W. N. W. l. br. foggy.
25	49 56	131 9	130 25	—	19 47	—	—	—	W. N. W. l. br. fair.
26	49 22	130 49	129 58	—	19 47	—	—	—	E. S. E. very little wind, foggy.

Aug. Sept. 1786.	Lat. North.	Long. computed West.	Long. W. by the Time Piece, No. 18.	Long. W. by the Dist. of the M. from the Sun.	Declination of the Needle E.	Therm. interior, observed at noon.	Barometer of Nairne observed at 9 in the morning and 3 in the afternoon.		Winds; state of the Sky; Remarks.
							At 9.	At 3.	
	D. M.	D. M.	D. M.	D. M.	D. M.	D.	P. L.	P. L.	
A.27	49 1	131 10	—	—	20 0	16	28 1	28 1	N varying to the E. S. E. and round every point of the compass in whirlwinds, little wind, ſt.
28	48 85	130 8	128 58	—	19 12	15	28 3	28 3	W. varying to the N. E. by N. l. br. foggy.
29	48 36	129 23	127 51	—	—	15	28 2	28 2	N. E. varying to the W. N. W. by N. l. br. cl.
30	48 31	129 21	127 54	—	17 28	14	Do.	Do.	W. N. W. varying to the S. S. E. by S. l. br. foggy.
31	48 11	129 35	127 58	—	17 28	15	28 1	28 1	S. and S. W. a calm, cl.
S. 1	46 37	128 23	127 1	127 1	16 55	14	28 2	28 2	W. S. W. varying to the N. W. partial guſts of wind.
2	45 55	127 55	126 36	126 59	16 35	14	28 4	28 4	W. and W. N. W. l. br. fair.
3	45 56	127 55	126 38	—	16 20	15	Do.	Do.	S. W. varying to the S. E. by S. a calm, fair.
4	44 42	128 10	126 68	—	16 14	15	Do.	28 3	S. S. W. varying to the N. by W. moderate br. fair.
5	43 1	128 9	127 2	—	15 26	14	28 3	Do.	N. and N. E. l. br. cl.
6	42 22	128 7	—	—	—	14	Do.	Do.	N. and N. N. W. moderate br. foggy.
7	40 48	128 22	127 23	—	15 35	14	Do.	Do.	Do
8	39 51	128 24	127 26	—	14 0	14	28 2	28 1	N. N. E. varying to the N. W. by N. l. br. fair.
9	38 59	127 55	—	—	—	15	28 1	Do.	N. and N. N. E. l. br. cl.
10	38 11	124 41	—	—	—	15	Do.	Do.	N. N. W. and W. little wind, foggy.
11	37 1	127 8	126 31	—	—	15	Do.	Do.	W. and N. W. l. br. foggy.
12	37 3	125 29	125 2	—	—	15	Do.	Do.	N. W. and N. fine br. rather foggy.
13	36 39	124 53	124 7	—	11 47	14	Do.	28 0	N. N. W. and N. W. l. br. foggy.
14	36 55	124 46	123 57	124 31	11 39	14	Do.	28 1	N. W. varying to the N. N. E. by N. l. br. miſty.
15	—	—	—	—	—	14	Do.	28 0	W. and W. S. W. little wind, rather foggy.
16	—	—	—	—	—	14	—	—	W. S. W. and W. l. br. fair.
17	—	—	—	—	—	14	—	—	S. varying to the E. S. E. ſqually wr fair.
18	—	—	—	—	—	15	—	—	S. E. varying to the S. W. by S. moderate br. fair.
19	—	—	—	—	—	15	—	—	S. W. and W. S. W. moderate br. cl. rain.
20	—	—	—	—	—	14	—	—	N. N. E. varying to the W. N. W. by N. l. br. fair.

Sept. Oct. 1796.	Lat. North.	Long. computed West.	Long. W. by the Time-Piece, No. 18.	Long. W. by the Diſt. of the Al. from the Sun.	Declination of the Needle E.	Therm. interior, obſ'd at noon.	Barometer of Nairne, obſerved at 9 in the morning and 3 in the afternoon.		Winds; State of the Sky; Remarks.
							At 9.	At 3.	
	D. M.	D. M.	D. M.	D. M.	D. M.	D.	P. L.	P. L.	
S. 21	—	—	—	—	—	15	—	—	S. W. and S. by S. moderate breeze, fair.
22	—	—	—	—	—	15	—	—	N. W. varying to the W. S. W. by W. l. br. fair.
23	—	—	—	—	—	15	—	—	W. S. W varying to the S. E. by S. little wind, fair.
24	—	—	—	—	11 57	15	—	28 2	W. varying to the E. S. E. by S. little wind, cl.
25	36 46	124 18	124 0	—	—	15	28 2	Do.	S. W. varying to the W. N W. by W. little wind, misty.
26	36 41	124 52	124 13	—	11 46	16	Do.	Do.	S. S. W. varying to the W. N. W. little wind, cl.
27	35 46	125 42	125 12	—	—	16	28 3	28 3	W. N. W. and N. N. W. do.
28	34 14	127 7	126 43	—	—	16	Do.	Do.	N. W. and W. N. W. moderate br. misty.
29	32 46	128 33	128 37	128 49	11 43	17	28 4	Do.	N. N. W. and N. l. br. foggy.
30	31 2	130 39	130 15	—	—	16	Do.	Do.	N. and N. N. E. moderate br. rather cl.
O. 1	29 31	132 37	—	—	—	16	28 3	Do.	N. and N. N. W. l. br. misty.
2	28 43	134 7	133 28	134 26	—	16	Do.	Do.	N. and N. E. little wind, misty.
3	28 12	135 33	134 33	—	9 42	17	Do.	Do.	N. N. E. l. br. cl.
4	27 56	136 6	135 20	—	9 33	18	Do.	Do.	N. E. varying to the W. by N. little wind, misty.
5	27 32	136 53	136 11	—	9 0	18	28 4	Do.	W. S. W. varying to the N. N. E. by N. l. br. cl.
6	27 36	137 58	137 34	—	8 43	18	Do.	28 4	N. and E. N. E. little wind, fair.
7	27 57	138 58	138 25	—	—	18	Do.	Do.	E. N. E. and E. little wind, cl.
8	28 6	140 18	139 38	—	—	18	28 5	Do.	E. and E. S. E. l. br. cl.
9	28 7	141 38	141 2	—	8 46	19	28 4	Do.	E. and E. N. E. little wind, cl.
10	28 3	143 20	142 45	—	8 47	19	Do.	Do.	E. moderate br. fair.
11	27 59	145 2	144 19	—	—	19	28 5	Do.	E. varying to the S. W. by S. little wind, fair.
12	27 59	145 41	145 0	145 85	8 50	20	28 4	Do.	W. N. W. varying to the S E. by N. a calm.
13	27 54	146 6	145 27	—	8 45	20	28 5	Do.	S. E. and E. S. E. l. br.
14	27 49	147 16	146 38	147 11	8 55	20	28 4	28 3	Do. cl.
15	27 58	148 52	148 2	148 36	9 1	20	28 3	Do.	S. E. and E. S. E. l. br. cl.
16	28 3	149 23	148 36	—	9 32	21	28 4	Do.	S. E. varying to the S. S. W. by S. a calm, misty. *I. N.* 50°.
17	27 53	149 28	148 35	—	9 15	22	Do.	28 4	W. S. W. varying to the N. E. by N. a calm.

Oct. Nov. 1786.	Latitude North.	Long. computed West.	Long. W. by the Time Piece, No. 18.	Long. W. by the Dif. o the M. from the Sun.	Declination of the Needle East.	Ther. interi. or, obs. ved at noon.	Barometer or Naime, observed at 9 in the mern. ing and 3 in the afternoon.		Winds; State of the Sky; Remarks.
							At 9.	At 3.	
	D. M.	D. M.	D. M.	D. M.	D. M.	D.	P. L.	P. L.	
O.18	27 48	149 37	148 39	—	9 31	22	28 5	28 3	N. W. varying to the S. E. by W. little wind, cl.
19	28 5	150 9	149 1	—	—	21	28 3	28 2	S. E. varying to the S. W. by S. l. br. cl. *I. N.* 48°.
20	27 42	150 49	—	—	—	20	28 2	Do.	S. W. varying to the N. E. by N, little wind, ft.
21	27 47	151 18	149 55	—	9 38	20	Do.	28 1	E. S. E. varying to the W. S. W. by S. little wind, rain.
22	28 9	152 21	150 26	—	—	22	Do.	28 2	S. W. and S. S. W. little wind, rain.
23	28 5	152 34	150 56	—	—	21	28 3	28 3	W. varying to the N.E.
24	27 25	154 27	152 47	—	9 53	20	Do.	28 2	N. E. varying to the W. N. W. by N. l. br. cl. rain.
25	27 32	154 47	153 32	—	10 12	20	Do.	Do.	N. and N. N. E. very little wind, fair. *I. N.* 47°.
26	27 27	155 38	154 22	155 15	10 40	20	Do.	28 3	N. N. W. and N. l. br. fair.
27	27 3	156 33	155 22	—	—	21	28 2	28 2	N. E. and S. S. E. by E. moderate br. rain.
28	26 59	158 36	157 8	—	10 30	23	Do.	28 1	E. S. E. and S. S. E. fr. g. cl. partial gusts of wind.
29	27 13	159 10	157 43	—	10 51	22	28 1	28 2	S. S. E. varying to the S. S. W. by S. little wind, ft.
30	26 27	159 8	157 28	158 44	11 4	21	28 2	Do.	S. S. W. and W. S. W. l. br. fair.
31	26 31	159 21	158 1	—	—	22	28 3	Do.	W. varying to the E. S. E. by N. little wind, fair. *I. N.* 44°.
N. 1	25 45	160 42	159 28	—	10 31	22	Do.	Do.	E. and E. S. E. fr. g. cl.
2	24 44	162 38	161 29	—	—	23	Do.	Do.	E. S. E. and E. N. E. moderate br. fair.
3	24 2	164 30	—	—	—	23	28 2	Do.	Do. cl.
4	23 35	166 0	165 7	—	—	23	Do.	Do.	E. and E. S. E. gusts of wind, rain.
5	23 33	166 39	165 58	—	—	22	28 3	Do.	E. and E. N. E. l. br. overcast, rain.
6	23 43	167 53	167 13	—	10 29	22	28 2	Do.	Do. fine br. cl.
7	23 39	168 28	168 16	—	—	22	Do.	28 1	E. and E. S. E. l. br. fair.
8	22 51	169 45	169 33	—	—	21	28 1	Do.	E. varying to the N. N. W. by N. gusts of wind, rain.
9	21 37	172 8	172 6	—	—	20	Do.	Do.	N. N. E. and N. N. W. fr. g. do.
10	21 15	174 12	174 11	—	—	20	28 2	Do.	Do. moderate br. cl.
11	21 10	175 24	175 32	176 19	12 0	20	28 2	Do.	N. N. W. varying to the W. little wind, misty.
12	21 18	176 3	176 6	176 48	11 20	21	28 1	27 11	W. N. W. varying to the S. S. W. by W. little wind, cl.

1786. Nov. Dec.	Latitude North.	Long. computed West.	Long. by the Time-Piece, No. 18.	Long. W. by the Dif. of the M. from the Sun.	Declination of the Needle E.	Therm. interior observd. at noon.	Barometer or Nairne observed at 9 in the morning and 3 in the afternoon.		Winds; State of the Sky; Remarks.
							At 9.	At 3.	
	D. M.	D. M.	D. M.	D. M.	D. M.	D.	P. L.	P. L.	
N 13	21 13	176 40	176 35	—	12 30	22	28 0	28 0	S. S. W. varying to the W. N. W. by W. l. br. rain.
14	20 54	177 1	176 55	178 36	12 30	21	28 1	28 1	W. and N. W. very little wind, cl.
15	20 36	177 28	177 20	—	12 12	22	28 2	Do.	W. and W. N. W. do. fair.
16	20 17	179 37	179 15	—	12 8	21	28 3	28 2	N. W. varying to the N. E. by N. moderate br. fair.
		East.	East.	East.					
17	20 8	178 28	179 2	—	12 0	21	Do.	Do.	N. and N. N. W. moderate br. cl.
18	19 57	177 30	178 24	—	11 59	21	28 2	Do.	Do. fair.
19	19 32	176 42	178 0	—	12 6	23	Do.	28 1	W. N. W. and N. N. W. l. br. rain.
20	19 38	175 40	176 49	—	12 20	23	Do.	Do.	N. W. varying to the N. E. by N. little wind, cl.
21	20 3	174 49	176 0	—	11 39	23	Do.	Do.	N. E. varying to the E. S. E. by S. l. br. fair.
22	20 11	174 5	175 7	—	—	23	Do.	Do.	S. E. varying to the W. N. W. gusts of wind, rain.
23	19 30	173 6	174 6	—	12 44	22	Do.	28 2	N. W. and W. N. W. l. br. fair.
24	19 46	172 26	173 27	—	12 8	23	Do.	28 1	N. W. varying to the S. E. by S. l. br fair.
25	20 42	171 38	172 39	—	—	24	28 1	28 0	S. S. E. and W. by S. moderate br. cl. rain.
26	20 33	170 36	171 35	169 57	12 24	23	28 2	28 2	W. S. W. varying to the N. N. E. by N. l. br. fair.
27	20 44	169 6	170 8	168 31	11 40	22	28 3	28 3	N. and N. E. l. br. cl.
28	20 20	167 32	168 17	168 17	10 18	22	Do.	Do.	E. N. E. and N. E. fine br. cl. rain.
29	20 39	166 0	166 33	—	11 29	21	Do.	28 2	E. and E. N. E. l. br. fair.
30	20 30	164 31	165 0	—	11 20	22	Do.	Do.	Do.
D. 1	20 53	163 52	164 28	—	10 34	23	28 2	28 1	E. varying to the W. S. W. by S. very little wind, fair.
2	21 39	163 17	164 12	—	9 38	24	Do.	Do.	S. S. W. and S. W. fine br. gusts of wind.
3	20 48	162 49	163 49	—	—	23	Do.	Do.	S. W. and W. N. W. partial gusts of wind, rain.
4	20 47	161 3	161 58	—	10 16	21	28 4	28 3	N. W. varying to the N. E. by N. gusts of w. moderate br. cl.
5	21 3	158 57	159 57	—	10 3	21	Do.	28 2	N E. and E. N. E. fine br. cl.
6	21 3	157 4	158 9	—	8 40	22	28 2	28 1	E. N. E. varying to the S. moderate br. cl.
7	21 27	156 33	157 38	—	8 30	23	Do.	28 2	S. varying to the N. W. by W. l. br. cl.
8	21 21	155 19	156 19	—	—	22	28 3	Do.	W. N. W. varying to the N. E. l. br. fair
9	20 52	153 0	154 6	—	7 10	21	Do.	28 3	N. E. and E. N. E. l. g. cl.

Dec. 1786, and Jan. 1787.	Latitude North.	Long. computed East.	Long. E. by the Time Piece, No. 18.	Long. E. by the Dif. of the M. from the Sun.	Declination of the Needle East.	Therm. Interior, observed at Noon.	Barometer or Nairne observed at 9 in the morning and 3 in the afternoon.		Winds; State of the Sky; Remarks.
							At 9.	At 3.	
	D. M	D. M.	D. M.	D. M.	D. M.	D.	P. L.	P. L.	
D 10	21 (	51 3	151 55	—	7 30	21	28 3	28 2	E. and E. N. E. fine br. fair.
11	20 53	149 14	150 13	148 47	7 20	22	Do.	Do.	Do.
12	20 3	147 18	148 14	146 39	7 21	23	Do.	Do.	E. and E. S. E. fr. g. fair.
13	20 26	146 5	147 23	—	6 17	24	Do.	Do.	S. S. E. varying to the S. S. W. l. br. cl. rain.
14	20 17	144 38	145 49	—	—	23	Do.	Do.	W. S. W. varying to the N. E. moderate br. gusts of wind, cl.
15	19 44	144 21	145 14	—	—	23	Do.	Do.	N. E. moderate br. misty.
16	20 4	142 59	143 30	—	—	23	28 2	28 1	Do. cl. rain.
17	19 57	141 49	142 24	—	3 53	23	Do.	Do.	E. N. E. and N. E. l. br. cl.
18	20 9	140 39	141 16	—	3 30	24	Do.	28 2	E. N. E. varying to the W. S. W. by S. moderate br. misty.
19	19 53	140 6	140 45	—	3 24	23	Do.	28 1	W. S. W. varying to the N. N. W. by W. l. br. fair.
20	19 45	138 53	139 24	—	3 4	21	28 3	28 2	N.W. and N. l.br. fair.
21	19 38	137 25	137 55	—	1 38	21	Do.	Do.	N. N. W. varying to the N.E. by N. l. br. fair.
22	20 2	135 58	136 14	—	1 11	21	Do.	—	N. E. and E. N. E. fine br. cl.
23	20 13	134 23	134 31	—	0 45	22	Do.	28 3	E. N. E. and N. E. l. br. cl.
24	20 44	131 27	132 14	—	0 42	22	Do.	Do.	N. E. and N. N. E. heavy g. cl.
25	20 35	129 23	130 17	127 28	0 16	22	Do.	Do.	N.E. and N. fine br. do.
					West.				
26	20 19	126 30	—	—	0 25	20	28 5	28 4	N. N. W. and N. N. E. very strong g. misty.
27	21 11	124 20	125 22	122 58	0 46	19	Do.	Do.	N. N. E. and E. do. cl. rain.
28	21 11	122 23	123 7	120 18	0 33	20	28 4	28 3	N. E. and E. fine br. cl.
29	21 15	121 17	122 8	119 34	0 23	21	28 3	28 2	E. and E. S. E. moderate br. cl.
30	21 16	119 38	120 51	—	—	22	Do.	Do.	E. S. E. and N. N. E. by E. fine br. cl.
31	22 2	116 56	119 4	—	—	20	Do.	28 3	N. E. and E. N. E. fine br. overcast, small rain.
1787									
J. 1	22 19	114 53	116 20	—	—	18	28 64	28 4	N.E. moderate br. hazy.
2	22 9	112 58	114 33	—	—	16	28 5	Do.	N. E. and E. N. E. fine br. hazy.
3	22 23	112 8	—	—	—	15	Do.	28 5	N. E. varying to the N. W. by N. fine br. overcast, small rain.
4	—	—	—	—	—	—	28 6	—	N. and N. E. l. br. overcast.

Jan. Feb. April, and May, 1787.	Latitude North, observed at noon.	Latitude North, computed at noon.	Long. East, computed at noon.	Long. East, by the Dif. tances of the Moon from the Sun, reduced at noon	Long. E. by the Time Piece, No. 18. at noon.	Long. by the Time Piece, No. 18, at noon, corrected according to the observations of dif. of the M. from the Sun, being such as is made use of on the Chart.	
	D. M.	D. M.	D. M.	D. M.	D. M.	D. M.	
Jan.	At Macao.						
F. 6	—	21 54	111 47				
6	—	22 3	112 34				
7	—	21 54	112 36				
8	—	21 19	112 59	—	113 0		
9	20 53	20 55	113 40	—	113 54		
10	19 59	19 55	115 2	—	114 53		
11	18 53	19 0	115 58	—	115 33		
12	18 30	18 30	116 29	—	116 6		
13	18 13	18 20	117 6	—	116 40		
14	18 12	18 9	117 52	—	117 26		
15	18 19	18 19	118 16	—	117 55		
16	17 59	17 48	118 27	—	118 25		
17	18 6	17 44	118 20	—	118 22		
18	18 3	17 45	118 11	—	118 26		
19	17 41	17 25	117 46	—	118 27		
20	15 48	15 44	117 17	—	117 37		
21	14 51	15 1	117 18	—	117 33		
22	14 33	14 31	117 56	—	117 58		
23	14 25 At Cavite.	14 27	118 26				All the following Longitudes are founded on that of Cavite, to which they have been reduced.
A. 10	14 29 Sailed fr. Cavite.	—	—	Long. of the ob. fervatory.	118 35	118 35	
11	15 21	—	117 25	—	117 13	117 12	
12	15 44	15 48	117 10	—	117 6	117 6	
13	16 16	16 10	116 57	—	116 53	116 52	
14	16 53	16 46	117 11	—	117 15	117 14	
15	17 6	17 7	117 18	—	117 24	117 22	
16	17 32	17 33	117 22	—	117 35	117 33	
17	18 13	18 4	117 14	—	117 25	117 22	
18	19 32	19 21	117 11	—	117 17	117 14	
19	21 0	20 53	118 29	—	117 9	117 6	
20	21 28	21 19	117 35	—	117 8	117 5	
21	—	21 45	117 20	—	116 54	116 51	
22	22 1	22 7	117 10	—	116 46	116 42	
23	22 10	22 7	117 36	—	117 13	117 9	
24	22 26	22 20	117 48	167 30 A mean between 20 obser. vations West.	117 39	117 34	
25	22 51	22 45	116 42		117 33	117 28	
26	22 59	23 3	116 17	—	116 18	116 13	
27	22 39	22 42	117 23	—	117 44	117 39	
28	22 58	22 53	117 13	—	117 37	117 32	
29	23 29	23 19	117 18	—	117 40	117 34	
30	22 13	22 17	117 19	—	117 51	117 45	
M. 1	—	21 47	117 52	—	118 15	118 8	
2	21 37	21 37	119 5	—	119 17	119 9	
3	21 47	21 49	119 11	—	119 18	119 9	
4	—	22 19	119 41	—	119 52	119 41	
5	—	22 53	120 12	—	120 27	120 15	
6	24 32	23 32	120 21	—	120 39	120 25	
7	26 7	25 41	120 38	—	121 19	120 4	

May and June, 1787.	Latitude North observed at noon.		Latitude North computed at noon.		Longitude East computed at noon.		Longitude East, by the distances of the Moon from the Sun.	Longitude East by the Time Piece, No. 18, at noon.		Long. by the Time Piece, No. 18. at noon, corrected according to the observations of dist. of the M. from the Sun, being such as is made use of on the Chart.	
	D.	M.	D.	M.	D.	M.	D. M.	D.	M.	D.	M.
M. 8	27	8	27	3	120	29	—	121	26	121	09
9	27	44	27	41	119	56	—	121	7	120	49
10	—		28	31	120	0	—	121	15	120	55
11	—		28	53	120	17	—	121	37	121	16
12	—		28	50	120	22	—	121	45	121	23
13	—		29	37	120	28	—	122	0	121	36
14	29	43	29	57	120	17	At the place of anch.	121	57	121	32
15	—		30	0	120	6	—	121	50	121	25
16	—		30	41	120	4	—	121	52	121	25
17	—		31	14	120	2	—	121	53	121	23
18	31	21	31	38	120	24	—	121	42	121	10
19	31	53	32	1	120	51	—	122	5	121	33
20	32	5	32	12	121	2	No.	122	24	121	50
21	32	38	32	53	122	48	—	124	4	123	28
22	33	0	33	6	123	25	123 46 A mean between 266 observations Weſt.	124	36	123	59
23	33	41	33	36	124	25		125	42	125	3
24	34	24	34	22	125	11	—	126	39	125	59
25	34	31	34	25	125	29	—	127	5	126	23
26	35	27	35	31	126	21	—	128	3	127	27
27	—		36	18	127	9	—	128	52	128	7
28	36	40	36	36	127	25	—	128	47	128	1
29	37	14	37	8	127	56	—	129	21	128	23
30	37	14	38	9	128	43	—	130	8	129	20
31	38	24	38	25	129	37	—	131	7	130	17
J. 1	38	12	38	13	130	37	—	132	8	131	16
2	37	39	37	43	131	16	—	132	48	131	54
3	37	18	37	26	131	50	—	133	5	132	10
4	—		37	12	132	36	—	133	56	132	58
5	38	7	37	54	133	0	—	134	26	133	27
6	37	44	37	46	133	58	—	136	32	134	31
7	38	33	38	23	134	56	—	135	35	134	32
8	39	26	39	16	132	44	133 40	134	2	132	57
9	—		40	16	131	27	—	133	18	132	11
10	40	58	41	0	130	41	131 13	132	10	131	1
11	41	57	42	7	130	49	131 32	132	33	131	22
12	42	33	42	46	131	20	The firſt of theſe 3 reſults, is by a mean between 48 obſervations Eaſt, the ſecond by 380 obſervations Eaſt, and the third by 396 obſervations Eaſt.	133	5	131	52
13	42	45	42	44	131	48		133	25	132	10
14	43	30	43	31	132	59		134	41	133	24
15	43	50	43	50	133	32		135	6	133	47
16	44	3	43	56	133	53		135	20	134	0
17	—		44	5	134	6		135	33	134	11
18	44	11	44	9	134	28		135	58	134	34
19	44	30	44	28	134	35		136	6	134	40
20	44	44	44	39	134	33	135 42 By a mean between 20 obſervations Weſt.	136	17	134	50
21	—		44	50	1 4	57		136	31	135	2
22	44	54	45	4	135	10		136	29	134	58
23	45	8	45	8	135	2		136	28	134	56
24	—		45	12	134	52	At the place of anch.	136	20	134	46

June, July, and Aug. 1787.	Latitude North, observed at noon.	Latitude North, computed at noon.	Long East, computed at noon.	Long. East by the Diſtance of the Moon from the Sun, reduced at noon.	Longitude W. by the Time Piece, No. 18. at noon	Long. by the Time Piece, No. 18, at noon, corrected according to the obſervations of Diſt. of the M. from the Sun, being ſuch as is made uſe of on the Chart.	
	D. M.	D. M.	D. M.	D. M.	D. M.	D. M.	
J. 25	—	—	—	—	—	—	
26	—	—	134 52	At the place of anch.	—	—	
27	45 11	45 10	135 29	—	136 27	134 47	
28	46 3	46 5	136 46	—	137 40	135 58	
29	—	46 50	138 4	—	138 52	137 9	
30	47 18	47 24	138 17	—	138 58	137 14	
Jl. 1	—	47 42	138 21	—	139 3	137 16	
2	—	47 45	138 24	—	139 11	137 22	
3	—	—	—	—	—	—	
4	—	47 43	138 26	—	139 13	137 21	
5	47 45	47 40	138 33	Do.	139 19	137 26	
6	47 57	47 54	139 27	—	139 40	137 44	
7	48 29	48 33	140 38	139 35 Mean of 96 obſervations E.	140 55	138 57	
8	48 22	48 18	140 49	139 23 Mean of 56 obſervations E.	141 15	139 15	
9	—	48 11	140 49	—	141 20	139 18	
10	48 25	48 9	140 57	139 41	141 34	139 30	
11	48 10	48 6	141 22	139 45 The firſt by 72 obſervations Eaſt: the ſecond by 238 do.	141 56	139 51	
12	47 49	47 48	141 21	At the place of anch.	152 5	139 40 131 58	At the place of anch.
13	—	—	141 25	—	—	—	
14	48 13	48 10	140 58	—	141 42	139 31	
15	48 26	48 26	140 32	—	141 20	139 7	
16	48 17	48 17	140 20	—	141 15	139 0	
17	48 18	48 18	140 5	—	141 3	138 46	
18	48 12	48 12	140 5	—	141 7	138 48	
19	—	48 43	141 6	—	142 13	139 52	
20	49 28	—	141 15	139 49	142 23	140 1	
21	49 53	49 59	141 10	—	142 25	140 1	
22	50 32	50 34	141 1	At the place of anch.	142 23	139 56	Do.
23	50 55	50 54	141 2	138 45	142 27	139 59	
24	51 26	51 23	140 49	—	142 7	139 37	
25	—	51 29	139 57	—	141 37	139 5	
26	—	51 40	—	—	141 44	139 11	
27	51 32	—	—	—	141 58	139 22	At 3 P. M. anchored in Baie de Caſtries.
28	51 26 At the obſervatory.	—	—	At anchor in Baie de Caſtries.	141 30	—	
29							
30							
31							
A. 1							
2							

August and September, 1787.		Latitude North observed at noon			Latitude North, computed at noon.			Longitude East, computed at noon.			Longitude East, by the Distances of the Moon from the Sun, reduced at noon.			Longitude East, by the Time Piece No. 18, supposing the Longitude of the bay of Castries to be 61 d. 45 m. 11 s. and the same loft every day by the time-piece to be equal to 40 m. 40 s.		
		D.	M.	S.	D.	M.	S.	D.	M.	S.	D.	M.	S.	D.	M.	S.
August	3	51	21	15	51	25	24	139	35	50		—		139	32	54
	4	50	50	20	50	51	57	139	0	15		—		138	46	24
	5	50	38	8	50	35	8	139	30	16		—		139	39	3
	6	50	23	6	50	22	23	139	11	20		—		139	11	44
	7		—		50	8	21	139	40	59		—		139	37	
	8	49	12	48	49	14	45	139	9	48		—		139	0	49
	9	48	26	21	48	23	54	139	40	24		—		139	25	33
											By a mean between 308 distances of the Moon from the Sun East.					
	10	46	56	57	46	50	0	139	59	52	139	38	46	139	31	53
	11	45	56	7	46	6	34	140	15	41		—		139	53	9
	12		—		45	41	32	140	30	53		—		140	9	0
	13	45	20	31	45	28	8	140	48	45		—		140	27	54
	14	45	29	14	45	30	34	141	13	29		—		141	8	19
	15	46	9	38	46	10	27	142	30	19		—		142	20	36
	16		—		46	21	8	143	27	4		—		143	24	24
	17	46	9	31	46	9	8	143	43	19		—		143	54	57
	18	45	58	47	46	6	52	144	35	12		—		144	27	1
	19	46	19	51	46	8	53	145	51	18		—		145	49	41
											By a mean between 150 distances of the moon from the Sun, West.					
	20		—		46	35	18	147	32	30	145	22	25	147	35	14
	21	47	9	2	47	8	54	148	8	12		—		148	2	0
	22	47	14	58	47	13	59	147	55	41		—		147	21	0
	23	47	11	38	47	10	4	148	9	31		—		147	34	28
	24	47	23	5	47	23	11	149	11	28		—		148	48	50
	25		—		47	31	32	149	39	7		—		149	16	0
	26		—		47	22	38	149	32	5		—		149	47	0
	27	47	10	44	47	21	50	149	35	34		—		149	50	9
	28		—		47	4	44	149	5	53		—		149	21	15
	29		—		46	22	59	149	23	50		—		149	43	0
	30	45	50	0	46	18	11	150	4	41		—		150	27	16
	31		—		46	7	57	151	5	26		—		151	28	0
September	1		—		46	56	21	152	44	40		—		153	11	0
	2	48	29	5	48	29	42	154	39	51		—		155	21	22
											Mean between 224 distances of the M. from the Sun, East.					
	3	49	19	31	49	26	8	155	52	7	157	6	44	156	36	20
											Mean between 32 distances of the M. from the Sun, East.					
	4		—		50	27	16	155	42	58	157	13	45	156	32	58
	5	50	58	49	51	11	13	156	4	1		—		157	20	6
	6	52	29	9	52	30	49	156	8	23		—			—	
	7	52	46	21	52	44	39	155	26	18		—			—	
					At anchor.			At anchor.								
	8		—		53	0	39	155	14	27		—			—	

☞ The following Table was presented, independently of the Journal of the Voyage, by Dagelet to Fleurieu, the Ex-minister of Marine, from whom I received it. Although the Explanation of this Table, and particularly that of the Column of Corrections, does not throw all the Light on the Subject which might be desired, it appears to me that the Publication of these Pieces, such as they are, may be of some Advantage to Navigators and Astronomers. (Fr. Ed.)

EXPLANATION

OF THE ANNEXED TABLE OF LONGITUDES, FROM APRIL 11, TO SEPTEMBER 7, 1787.

THE obſervations of the diſtances of the moon from the ſun, both in the eaſt and weſt, were very numerous during our navigation in the ſeas of Eaſt Tartary, till our arrival in the bay of Avatſcha: by them we were enabled frequently to verify the going of the time-piece, No. 19, by comparing the longitudes obtained by the diſtances, with thoſe which the time-piece would have given, on the ſuppoſition, that, during this whole navigation, it had preſerved the daily motion attributed to it from the obſervations made at Cavite.

The firſt column of longitude preſents, each day, the longitude of the ſhip, reduced to the time of noon, ſuch as the time-piece No. 19 gave it, according to its daily movement aſcertained at Cavite, and by ſuppoſing the ſituation of that port to be 117 deg. 36 min. eaſt of Paris, as we deduced it from the difference of meridian given by the time-piece between Macao and Cavite, regard being paid to all corrections. A mean between the reſults of ſome obſervations of diſtances weſt, gave the longitude of Cavite at 117 deg. 50 min.; but on reducing the obſervations made at Macao to this port, Dagelet concluded this reſult to be too much by from 13 min. to 15 min. 2 ſec. He had obſerved many occultations of ſmall ſtars by the moon, according to which he propoſed to remove any doubts which might remain as to the longitude of Cavite, being certain that he had aſcertained the poſition of thoſe ſtars in the journals of his obſervatory at the *école militaire*.

The column of corrections furniſhes the additions which it is neceſſary to make each day to the longitude of the time-piece No. 19, in order to obtain the true longitude expreſſed in the laſt column.

Dagelet does not explain the method which he made uſe of in drawing up the column of corrections; we only know, that, after having computed the quicker or ſlower going of the time-piece in the interval of two ſeries of obſervations eaſt and weſt, by comparing his reſults with the mean reſult of each ſeries, he deduced the error of the time-piece at the different periods of the obſervations of diſtances; and thence deduced, by way of interpolation, the corrections for the intermediate days.

April, May, and June, 1787.		Latitude.			Longitude by the Time Piece, No. 19. Cavite being 117d. 30m. East of Paris.			Corrections.			True Longitude.		
		D.	M.	S.	D.	M.	S.		M.	S.	D.	M.	S.
April.	11	15	18	8	117	37	36	+	26	31	118	4	7
	12	15	45	0	116	59	30	+	29	16	117	28	46
	13	16	11	53	117	23	15	+	31	44	117	54	59
	14	16	46	33	117	21	30	+	33	55	117	55	25
	15	17	3	4	117	39	45	+	35	48	118	15	33
	16	17	30	49	—	—	—	+	37	15			
	17	18	9	52	117	24	7	+	38	35	118	2	42
	18	19	30	54	117	18	15	+	39	38	117	57	53
	19	20	57	49	117	39	30	+	40	24	118	19	54
	20	21	25	13	117	0	0	+	40	55	117	40	65
	21	21	39	Comp.	—	—	—	+	41	10			
	22	22	3	31	116	55	45	+	41	9	117	36	54
	23	22	1	36	117	41	30	+	40	51	118	22	21
	24	22	23	45	117	41	30	+	40	13	118	21	43
	25	22	49	38	116	41	15	+	39	49	117	21	4
	26	22	55	28	116	17	30	+	38	55	116	56	25
	27	22	35	1	117	34	15	+	38	0	118	12	15
	28	22	53	27	117	23	30	+	37	4	118	0	34
	29	23	24	46	117	17	45	+	36	7	117	53	52
	30	22	10	18	117	39	15	+	35	9	118	14	24
May.	1	21	45	Comp.	—	—	—	+	34	10			
	2	21	38	5	119	8	50	+	33	10	119	42	0
	3	21	44	51	119	10	7	+	32	9	119	42	16
	4	22	14	Comp.	—	—	—	+	31	6			
	5	23	4	0	120	6	45	+	30	1	120	36	46
	6	24	28	50	120	29	15	+	28	55	120	58	10
	7	26	4	55	121	5	40	+	27	47	121	33	27
	8	27	10	5	120	56	0	+	26	38	121	22	38
	9	27	42	28	120	54	45	+	25	28	121	20	13
	10	28	21	Comp.	—	—	—	+	24	17			
	11	—	—	—	—	—	—	+	23	5			
	12	—	—	—	—	—	—	+	21	46			
	13	29	25	Comp.	121	34	30	+	20	16	121	54	46
	14	29	46	23	121	34	30	+	18	38	121	53	8
	15	30	—	—	—	—	—	+	16	53			
	16	—	—	—	—	—	—	+	15	4			
	17	31	0	Doubt.	—	—	—	+	13	4			
	18	31	14	35	121	22	50	+	10	53	121	33	8
	19	31	45	15	—	—	—	+	8	30			
	20	32	0	17	121	57	15	+	5	53	122	3	8
	21	32	33	50	123	30	15	+	3	3	123	33	18
	22	32	56	42	124	3	25	+	0	4	124	3	19
	23	33	41	12	125	6	30	—	2	45	125	3	45
	24	34	22	26	126	11	50	—	5	19	126	6	31
	25	34	28	36	126	28	50	—	7	36	126	21	14
	26	35	28	41	127	14	26	—	9	34	127	4	52
	27	36	33	46	127	54	14	—	11	18	127	42	56
	28	36	39	51	127	50	25	—	12	24	127	38	1
	29	37	9	5	128	39	41	—	13	55	128	25	49
	30	38	9	25	129	24	15	—	14	45	129	9	30
	31	38	22	14	130	23	15	—	15	20	130	7	55
June.	1	38	9	27	131	15	15	—	15	35	130	59	40
	2	37	37	1	131	52	42	—	15	39	131	37	3
	3	37	19	8	132	11	30	—	15	37	131	55	53
	4	—	—	—	—	—	—	—	15	34			
	5	38	6	21	133	18	14	—	15	30	133	2	44
	6	37	39	12	134	30	10	—	15	26	133	14	45
	7	38	28	24	134	35	30	—	15	19	134	20	11
	8	39	16	58	133	11	45	—	15	12	132	56	33
	9	—	—	—	—	—	—	—	15	4			
	10	40	48	35	131	19	56	—	14	55	131	5	1
	11	41	54	46	131	35	30	—	15	44	131	20	46

June, July, and Aug. 1787.		Latitude.			Longitude by the Time Piece, No. 19. Cavite being 117d. 30m. E. of Paris.			Corrections.		True Longitude.		
		D.	M.	S.	D.	M.	S.	M.	S.	D.	M.	S.
June.	12	42	35	46	132	3	45	— 14	32	131	49	13
	13	42	47	4	132	20	30	— 14	19	132	6	11
	14	43	32	31	133	36	20	— 14	5	133	22	15
	15	43	53	Comp.	—	—	—	— 13	50			
	16	43	54	20	134	8	15	— 13	34	133	54	41
	17	44	20	Comp.	—	—	—	— 13	17			
	18	44	7	30	—	—	—	— 12	51			
	19	44	30	0	134	52	30	— 12	13	134	40	17
	20	44	43	0	135	1	15	— 11	36	134	49	39
	21	—	—	—	—	—	—	— —	—	—	—	—
	22	45	1	5	135	28	30	— 10	45	135	13	45
	23	45	9	32	135	5	53	— 10	23	134	55	30
	24	45	10	32	134	51	15	— 10	10	134	41	5
	25	Latitude of anchorage.			Long. of anchorage.							
	26	45	11	16	134	51	15	— 10	1			
	27	45	11	43	134	54	45	— 10	3	134	44	42
	28	46	4	4	136	4	19	— 10	9	135	54	10
	29	46	50	18	137	14	23	— 10	19	137	4	4
	30	47	19	16	137	12	5	— 10	33	137	1	32
July.	1	47	50	5	137	2	30	— 10	53	136	51	37
	2	47	44	—	137	24	0	— 11	18	137	12	42
	3	—	—	—	—	—	—	— 11	28			
	4	—	—	—	—	—	—	— 11	48			
	5	47	43	12	137	28	0	— 12	8	137	15	52
	6	47	57	41	137	59	45	— 12	30	137	45	15
	7	48	29	15	138	53	46	— 12	53	138	40	53
	8	48	19	51	139	21	0	— 13	18	139	7	42
	9	48	16	30	139	34	0	— 13	44	139	20	16
	10	48	22	34	189	37	15	— 14	11	139	23	4
	11	48	6	2	139	56	0	— 14	39	139	41	21
	12	47	53	4	140	0	30	— 15	16	139	45	14
	13	47	49	10	140	28	42	— 15	58	140	12	44
	14	48	15	30	—	—	—	— 16	39			
	15	—	—	—	—	—	—	— 17	23			
	16	—	—	—	—	—	—	— 18	10			
	17	—	—	—	—	—	—	— 19	13			
	18	—	—	—	—	—	—	— 20	40			
	19	—	—	—	—	—	—	— 22	20			
	20	49	27	40	140	11	48	— 24	14	139	47	34
	21	49	50	35	—	—	—	— 26	15			
	22	50	31	15	140	9	52	— 28	36	139	41	16
	23	50	53	26	140	18	—	— 30	56	139	47	4
	24	51	26	27	140	10	30	— 33	21	139	37	9
	25	51	28	0	139	26	15	— 35	42	138	50	32
	26	—	—	—	—	—	—	— 37	43			
	27	51	29	43	139	43	15	— 39	38	139	5	0
	28	—	—	—	—	—	—	— 41	26			
	29	51	28	30	139	19	17	— 43	13	138	36	4
	30	—	—	—	—	—	—	— —	—	—	—	—
	31	—	—	—	—	—	—	— —	—	—	—	—
August.	1	—	—	—	139	20	47	— 48	0	138	32	47
	2	—	—	—	—	—	—	— 49	31			
	3	51	20	0	140	18	18	— 51	0	139	27	18
	4	50	40	31	139	28	30	— 52	26	138	36	4
	5	50	38	25	140	22	22	— 53	58	139	28	24
	6	50	20	45	139	58	15	— 55	40	139	2	35
	7	49	—	—	—	—	—	— 57	32			
	8	48	14	7	139	49	55	— 59	34	138	50	21
	9	48	25	40	140	13	30	— 61	22	139	12	8
	10	46	26	45	140	27	0	— 63	9	139	23	51
	11	45	57	33	140	42	15	— 63	36	139	38	39
	12	45	56	30	140	42	15	— 64	47	139	37	28

August and September, 1787.		Latitude.			Longitude by the Time Piece, No. 19. Cavite being 117d. 30m. E. of Paris.			Corrections.			True Longitude.		
		D.	M.	S.	D.	M.	S.		M.	S.	D.	M.	S.
August.	13	45	20	12	141	27	37	—	65	38	140	21	59
	14	45	29	4	142	7	20	—	66	25	141	0	55
	15	46	9	55	143	24	7	—	66	59	142	17	8
	16	—	—	—	—	—	—	—	67	20			
	17	46	9	0	145	1	15	—	67	33	143	53	42
	18	45	55	47	145	22	47	—	67	34	144	15	13
	19	46	20	27	146	54	45	—	67	23	145	47	22
	20	46	29	30	148	48	57	—	66	59	147	41	58
	21	47	8	20	149	33	37	—	66	37	148	27	0
	22	47	16	22	—	—	—	—	66	26			
	23	47	11	39	148	50	22	—	66	26	147	43	56
	24	47	22	9	149	53	30	—	66	40	148	46	50
	25	—	—	—	—	—	—	—	67	13			
	26	—	—	—	—	—	—	—	68	11			
	27	47	12	32	150	53	25	—	68	56	149	44	29
	28	47	7	0	150	36	—	—	69	42	149	26	18
	29	—	—	—	—	—	—	—	70	38			
	30	45	55	13	152	6	10	—	71	28	150	54	42
	31	—	—	—	—	—	—	—	72	20			
September	1	—	—	—	—	—	—	—	73	14			
	2	43	25	0	156	33	30	—	74	11	155	19	19
	3	49	19	30	157	56	0	—	75	10	156	40	50
	4	—	—	—	—	—	—	—	76	13			
	5	50	57	30	158	48	7	—	77	12	157	30	55
	6	52	28	59	158	46	15	—	78	12	157	28	3
	7	52	48	29	158	9	10	—	79	11	156	49	59

END OF THE THIRD VOLUME.

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on 15 June, 2016